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Weed Hay Fever

THE Late Summer and Early Autumn Type of Hay Fever is caused by many of the common weeds, as–Ragweed, Russian Thistle, Sage Brush –the species differing widely according to locality. To assure specific treatment diagnostic tests are essential. To assure preseasonal treatment early diagnoses should be made,–otherwise the less desirable, though often beneficial, coseasonal treatment will be involved. List of late flowering weeds, showing regional distribution and time of pollination, sent on request.

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SAGE BRUSH *Artemisia tridentata*

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THE BOSTON
Medical and Surgical
JOURNAL

VOLUME 191 AUGUST 21, 1924 NUMBER 8

ORIGINAL ARTICLES

MORTALITY IN THE SURGICAL DISEASES OF CHILDREN*

GEORGE DAVID CUTLER, M. D., F. A. C. S., BOSTON, MASS.

THIS communication is a preliminary report of mortality in the surgical diseases at the Children's Hospital. So far as I know it is the first presentation of the subject in a collective and relative manner. To my mind it is significant because it emphasizes the more important surgical conditions to which attention should be directed if we are to further reduce mortality.

It has been possible to collect the data necessary for such a study through the foresight of the hospital authorities, at the suggestion of Dr. James S. Stone, to publish the statistics of the Surgical Service in a uniform and accepted manner in annual reports. The deductions which I have made are derived from figures taken from these reports for the years 1916 to 1923 inclusive, a period of eight years, during which time I have been a member of the surgical staff and, therefore, personally interested in our results.

I am aware of the difficulties that arise in the handling of statistics. The problem is very suggestive of permutations and combinations and even probabilities. Nevertheless, from the manner in which I have arranged these figures, it appears that certain facts are demonstrated.

It should be stated that I have dealt with primary causes of death. Had it been possible to present the contributing causes of death as well, the result would be much more complete. This work I hope to do subsequently. My impression is that it will chiefly increase the number of deaths attributable to infections.

In order to determine the rate of surgical mortality the summaries from the eight annual reports, covering 1916 to 1923 inclusive, were first grouped (see Table I) and this shows that during these years there were eight thousand five hundred and twelve patients admitted to the surgical wards and of this number two hundred and sixty-one were discharged dead, a mortality of seven and fifteen hundredths percent.

Table II represents these figures in the form of a graph.

To show in a general way the relative mortality on the different services at the hospital I present Table III, which covers the year 1922 only.

TABLE I.

MORTALITY IN THE SURGICAL DISEASES OF CHILDREN.

Summary from C. H. Reports. 1916 - 1923 Incl.

Year.	Total Cases Treated in Hospital Wards.	Discharged Well or Relieved.	Discharged Unrelieved.	Discharged Untreated.	Discharged to Depts. of Hospital.	Discharged Dead.	Remaining in Hospital.	Operations.	Percent. Mortality.
1916	885	698	15	19	34	88	33	769	9.94
1917	955	796	24	32	9	70	24	864	7.32
1918	952	801	8	15	14	77	37	857	8.08
1919	1078	900	23	26	9	88	32	973	8.16
1920	1122	1004	10	5	8	58	37	967	5.17
1921	1193	1039	24	2	15	83	30	1043	6.95
1922	1154	1027	11	4	12	69	31	868	5.97
1923	1173	1035	3	8	14	76	37	838	6.47
8 yrs.	8512	7300	116	111	115	609	261	7169	7.16% av.

The next procedure classifies the causes of death occurring during one year, 1923, and they are accommodated by the groups of infections, malformations, intestinal obstruction, burns, tumors and miscellaneous. Of the six miscellaneous causes, fracture of the skull and intracranial hemorrhage make an addition group, trauma. Pyloric stenosis and megacolon may be included under malformations or congenital defects and possibly umbilical hernia belongs in the same group. That leaves out only renal calculus and the accompanying infection is really the important factor in this condition.

TABLE III

TABLE SHOWING MORTALITY FOR ALL SERVICES AT CHILDREN'S HOSPITAL—1922

Service	Admissions	Deaths	% Mortality
Medical*	573	63	10.99
Surgical	1154	69	5.98
Orthopedic	747	4	.53
Throat	2515	2	.07
Total	4989	138	2.7

*Patients admitted from 2 to 12 years.

*From the Surgical Service of the Children's Hospital. Read before the New England Pediatric Society, April 11, 1924.

TABLE II.

STATISTICAL GRAPH

Children's Hospital Surgical Service

1916 to 1923 Inc.

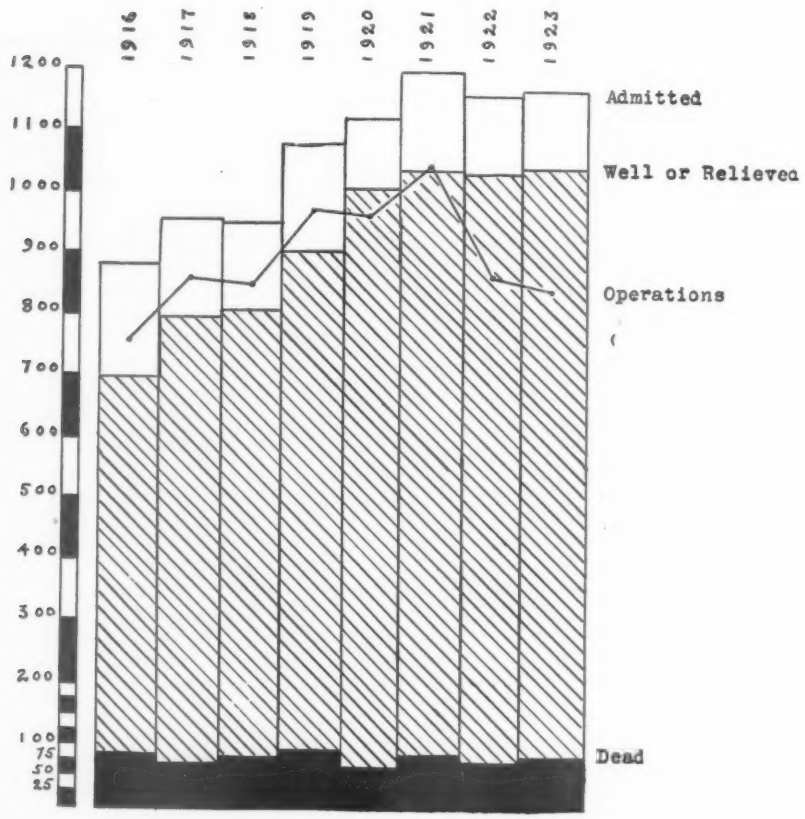


Table IV represents this grouping and gives the relative importance of each in the production of mortality.

TABLE IV

1923 Surgical Deaths (Grouped)

Infections			
Empyema	11		
Acute Appendicitis with Peritonitis	7		
Acute Appendicitis	4		
Peritonitis (Primary)	2		
Lung Abscess	2		
Omphalitis	2		
Septicemia	1		
Pyemia	1		
Liver Abscess	1		
Tuberculous Peritonitis	1		
Mastoiditis	1		
Lobar Pneumonia	1		
Osteomyelitis with Septicemia	1	35	46.05%
Hydrocephalus		4	
Malformations			
Spina Bifida	7		
Exstrophy of Bladder	2		
Hare Lip	2		
Cleft Palate	1		
Atresia of Anus	1		
Malformation of Rectum	1	14	23.68%
Intestinal Obstruction			
Intussusception	3		
Intestinal Obstruction	2		
Intestinal Obstruction with Peritonitis	1		
Volvulus	1	7	9.21%
Burns		7	9.21%
Tumors			
Cyst of Liver	1		
Sarcoma of Liver	1		
Sarcoma of Kidney	1	3	3.94%
Fracture of Skull	1		
Intracranial Hemorrhage	1		
Pyloric Stenosis	1		
Renal Calculus	1		
Umbilical Hernia	1		
Megacolon	1		
	76		

Having determined the method of grouping

from one year's figures, it is applied to the seven year period, 1917 to 1923 inclusive, from which the following table is produced. (See Table V.)

TABLE V

SURGICAL DEATHS—1917 TO 1923 INC. (GROUPED)

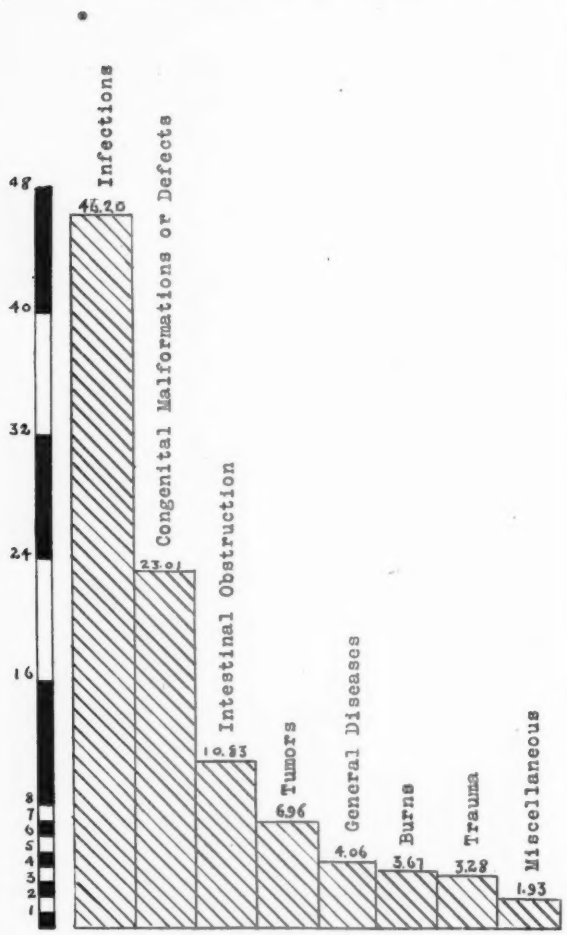
	Cases	Deaths	Mortality		
Infections					
Empyema	462	77	16.66%		
Acute Appendicitis	358	41	11.45		
Peritonitis (General)	12	6	50.00		
Peritonitis (Pneumococcus)	11	7	63.63		
Septicaemia	12	12	100.00		
Peritonitis (Tuberculous)	56	11	19.64		
Osteomyelitis	59	9	15.25		
Cervical Adenitis	522	8	1.53		
Omphalitis	10	7	70.00		
Cellulitis	11	6	54.54		
Pneumonia	32	6	18.75		
Lung Abscess	30	5	16.66		
Retropharyngeal Abscess	75	5	6.66		
Epiphysitis	12	5	41.66		
Nephritis	13	4	30.76		
Tuberculous Meningitis	5	3	60.00		
Cerebral Abscess	5	3	60.00		
Pyemia	6	4	66.66		
Multiple Abscesses	17	2	11.76		
Erysipelas	8	2	25.00		
Peritoneal and Retroperitoneal Abscess	6	2	33.33		
Liver Abscess	4	2	50.00		
Hematogenous Infection of Kidney	4	1	25.00		
Abscess of Buttocks	11	1			
Abscess of Shoulder	9	1			
Mastoiditis	4	1			
Colitis plus Broncho Pneumonia	1	1			
Acute Encephalitis	1	1			
Gangrenous Stomatitis	3	1			
Infectious Diarrhea	3	1			
Perinephritic Abscess	7	1			
Intestinal Intoxication	2	1			
Ludwig's Angina	1	1			
Influenza	1	1		239	46.20%
Hydrocephalus	44	13	29.54		
Congenital Malformations or Defects					
Spina Bifida	110	32	29.09		
Cong. Pyloric Stenosis	117	13	11.11		
Cleft Palate	402	10	.24		
Atresia of Anus	31	10	32.25		
Malformation of Intestine	15	10	66.66		
Hare Lip	284	9	3.16		
Hare Lip and Cleft Palate	74	9	12.16		
Exstrophy of Bladder	15	5	33.33		
Megacolon	16	4	25.00		
Hypospadias	90	2	2.22		
Obliteration of Bile Ducts	3	1	33.33		
Patent Urachus	2	1	50.00	106	23.01%
Intestinal Obstructions					
Intussusception	133	39	29.32		
Intestinal Obstruction	30	16	53.33		
Volvulus	1	1	100.00	56	10.83%
Tumors					
Tumor of Brain	33	10	30.30		
Tumor of Kidney	24	8	33.33		
Congenital Cystic Kidney	5	3	60.00		
Tumor of Abdomen	5	2	40.00		
Sarcoma of Liver	4	2	50.00		
Angiomas	154	1	.64		
Embryoma of Ovary	2	1	50.00		
Sarcoma of Chest	2	1	50.00		
Sarcoma of Testis	2	1	50.00		
Hemolymphangioma (Septic)	1	1	100.00		
Retroperitoneal Sarcoma	1	1	100.00		
Sarcoma (? Location)	1	1	100.00		
Omental Cyst	1	1	100.00		
Mediastinal Sarcoma	1	1	100.00		
Cyst of Liver	1	1	100.00		
Papilloma of Bladder	1	1	100.00	36	6.96%
Burns	97	19	19.58	19	3.67%
Trauma					
Fracture of Skull	49	5	10.20		
Obstetrical Paralysis	37	3	8.10		
Cerebral Hemorrhage	8	3	37.50		
Multiple Internal Injuries	3	2	66.66		
Concussion of Brain	21	1	4.76		
Oesophageal Stricture	26	1	3.84		
Subdural Hemorrhage	1	1			
Intra-abdominal Hemorrhage	1	1		17	3.28%
General Diseases					
Hemorrhagic Disease of Newborn	26	10	38.46		
Purpura	13	5	38.46		
Hemophilia	51	3	5.88		
Lymphatic Leukemia	3	1	33.33		
Scurvy	4	1	25.00		
Jacksonian Epilepsy	1	1		21	4.06%
Miscellaneous					
Hernia—Inguinal	1270	1	.07		
Hernia—Umbilical	85	3	3.53		
Hydrocele	121	2	1.65		
Renal Calculus	7	2	28.57		
Undescended Testicle	93	1	1.07		
Prolapse of Rectum	36	1	2.77	10	1.93%

In this table you will note in the third column of figures the percent mortality after most of the conditions. In certain instances when the number of cases includes readmission of the same patient, notably in empyema, osteomyelitis, cervical adenitis, cleft palate, hypospadias, exstrophy of the bladder and hemophilia, the figures given are open to question. With these few exceptions the figures represent the actual percent mortality of the given condition. What the table is meant to bring out is the order of

importance and the percent mortality of each group. This is clearly shown by the accompanying graph. (See Table VI.)

TABLE VI.

PERCENTAGE OF 517 DEATHS IN GROUPS



If we further analyze the group of deaths from infections it is apparent that, for the purposes of this paper, we may eliminate from discussion the medical conditions; pneumonia, nephritis, tuberculous meningitis, colitis with broncho-pneumonia, acute encephalitis, infectious diarrhea, intestinal intoxication and influenza.

Empyema was the cause of the greatest number of deaths in this group but there were four hundred and sixty-two patients admitted suffering from this disease, a number only exceeded by admissions for cervical adenitis (five hundred and twenty-two) and the percent mortality is only sixteen and sixty-six hundredths which compares favorably with statistics from other clinics. Many of these deaths occurred in infants. Empyema is a disease of the congested districts and rarely occurs in the presence of sufficient sunlight and fresh air. These facts point out a possible means of reduction in the number of cases. We now treat these patients by aspiration, intercostal drainage or rib resection according to age, type of infective organism and other requirements of the case, using local anesthesia when possible and gas oxygen general anesthesia when necessary. We are convinced that we have saved lives in many instances by using the less radical methods of drainage to tide very sick infants and children over the synpneumonic stage of empyema. Rib resection is for metapneumonic empyema and except in the streptococcus infections should be performed to adequately free adherent lungs and prevent the development of chronic empyema.

Acute appendicitis was found to cause forty-one deaths, the second greatest number among the infections; yet the mortality figures only eleven and forty-five hundredths percent because the disease was third in order of admissions (three hundred and fifty-eight). These figures included appendicitis with abscess and appendicitis with peritonitis, so that although the percentage is high there is some justification for it. Appendicitis in children is commonly met with, but I think I am right in stating that in the hospital class of patients its recognition is somewhat delayed. In most of the operations drainage is required. This means that the patients complain but little of their abdominal pain, and if they vomit are thought to have only a gastro-intestinal upset. For this castor oil is generally given which accelerates and spreads the pathological process. Then the child appears sick enough to call in a physician who recognizes the condition and sends the patient to the hospital. It is the pain following perforation and setting up of localized or general peritonitis that in many instances calls attention to the seriousness of the condition. Earlier diagnosis and earlier surgery alone can reduce the mortality from acute appendicitis.

Acute peritonitis, due to streptococcus and pneumococcus infection, produced a very high mortality; twenty-three cases, thirteen deaths, a mortality of fifty-six and fifty-two hundredths percent. Of paramount importance in operating for this condition is its recognition, from the nature of the exudate, then as little manipulation as possible within the abdomen and the insertion of adequate drainage to the pelvis after which the patient is placed in Fowler's position and a sufficient amount of fluids administered to promote elimination. Special nursing should be provided.

Septicemia according to these statistics proved uniformly fatal in twelve patients. Undoubtedly septicemia also played a part in causing the deaths in at least some of the diseases classified as osteomyelitis, omphalitis, epiphysitis, pyemia, multiple abscesses, erysipelas and hematogenous infection of kidney. These infections may start from simple conditions such as, furuncles or infected wounds on any part of the body which

due to the virulence of the infection or the lowered resistance of the patient, manifest themselves locally and by adenitis, followed by abscess, at the flexures of the body. In some of them the original focus is in the throat. Omphalitis requires special mention. It is the starting point of many of the fatal infections of infants as it readily leads to peritonitis or pyemia and septicemia probably via the hypogastric arteries to the iliacs thence to regions of terminal arteries. In infancy and younger children we have epiphysitis due to streptococcus infection and in the older children osteomyelitis due to staphylococcus pyogenes aureus.

Proper drainage of abscesses as they form and efforts to improve the patient's general condition are appropriate treatment. The administration of mercurochrome and gentian violet intravenously has recently been advocated and may prove to be of great benefit in these grave conditions.

Infections of the upper respiratory tract producing nasopharyngitis, tonsillitis, adenoiditis, acute otitis media and retropharyngeal abscess are important as manifested by the number of patients admitted with cervical adenitis, which results secondarily. Carious teeth and pediculosis may also cause cervical adenitis. Tuberculosis is responsible for a large number of the cases included in this series. There were in all five hundred and twenty-two patients admitted with only eight deaths, a mortality of one and fifty-three hundredths percent. Thus, although cervical adenitis is very common it is not the cause of many deaths. Protection against exposure to infection, hygiene of the mouth and clean milk will lower the incidence of cervical adenitis.

Some of the thirty patients admitted with lung abscess were re-entries. Five of them died, a mortality of sixteen and sixty-six hundredths percent which is probably lower than it should be. The causes were inspiration of foreign bodies or material from the mouth or throat following operations and a few following pneumonia. Bronchoscopy cured many of them; the strictly surgically treated ones were either drained directed or as secondary empyemas. The value of X-ray studies and assistance from the throat specialist should be emphasized in dealing with this condition.

Cerebral abscess occurred only five times with three deaths recorded. This condition results from infection following trauma, from extension of mastoiditis, from infected emboli from the lung in lung abscess and in pyemia. It is a serious disease and efforts at drainage are not always successful.

Congenital malformations constitute the second group of conditions in which mortality occurred. I have shown that infections caused nearly half the deaths; now I wish to point out that these congenital conditions are responsible for an additional twenty-three percent, thus these two groups account for about seventy percent of the total mortality.

Cleft palates were most numerous (four hundred and two) despite the fact that this number represents some readmissions. Hare lips were next (two hundred and eighty-four), then congenital pyloric stenosis (one hundred and seventeen), spina bifida (one hundred and ten), hypospadias (ninety, many readmissions), hare lip and cleft palate (seventy-four), hydrocephalus (forty-four), atresia of anus (thirty-one), megacolon (sixteen), malformation of intestines (fifteen), exstrophy of bladder (fifteen, some readmisisons), obliteration of bile ducts (three), patent urachus (two). The table below is arranged according to percent mortality.

Malformation of intestines	66.66%
Patent urachus	50.00
Obliteration of bile ducts	33.33
Exstrophy of bladder	33.33
Atresia of anus	32.25
Hydrocephalus	29.54
Spina bifida	29.09
Megacolon	25.00
Hare lip and cleft palate	12.16
Pyloric stenosis	11.11
Hare lip	3.16
Hypospadias	2.22
Cleft palate	.24

It shows satisfactorily the relative seriousness of these conditions. Patent urachus should not give so high a mortality as fifty percent. Some comment should be made regarding the figures for cleft palate and hare lip. Hare lip and cleft palate mortality figures twelve and sixteen hundredths percent as against three and sixteen hundredths percent for hare lip alone. Nasopharyngitis, middle ear disease and pneumonias are largely responsible for the deaths in the hare lip and cleft palate patients. Occasionally after operation an unexplained hyperpyrexia and death occurs within a few hours. The mortality for cleft palate is given as twenty-four hundredths. Do not forget that the hare lips are usually repaired at the age of about three weeks whereas the palates are not operated upon until the baby attains the age of at least sixteen months.

There were fifty-six deaths from intestinal obstruction, ten and eighty-three hundredths percent of the total mortality. Intussusception was responsible for thirty-nine of these deaths and during this seven year period one hundred and thirty-three patients with this type of obstruction were admitted, giving a mortality for this condition of twenty-nine and thirty-two hundredths percent. Earlier diagnosis and operation alone can lower this mortality. The volvulus case mentioned was a congenital condition with abnormal mesenteric attachments. Operation was performed on the fourth day releasing the volvulus but it recurred within eight days and the patient died. The other cases were

mostly due to adhesions following previous inflammations. Dr. Ladd is at present engaged in work on this problem with a view to reduction of mortality in intestinal obstruction.

Tumors of various parts of the body make up a group causing six and ninety-six hundredths percent of the total mortality. Angiomas and hemolymphangoimas were causes of death on one occasion each because of sepsis originating from ulceration of the tumor. They are, of course, benign conditions. Congenital cystic kidney, omental cyst and cyst of the liver were rare, congenital cystic kidney occurring five times with three deaths and the other cysts once each. Papilloma of the bladder occurred only once, the death was an operative one. Arrangement of the tumor cases according to location makes the following table which shows that most of them are abdominal.

Tumor of brain	30	10	30.30%
Sarcoma of chest	2	1	50.00
Sarcoma of mediastinum	1	1	100.00
Tumor of kidney	24	8	33.33
Tumor of abdomen	5	2	40.00
Sarcoma of liver	4	2	50.00
Embryoma of ovary	2	1	50.00
Sarcoma of ?	1	1	100.00
Retroperitoneal Sarcoma	1	1	100.00
Sarcoma of testis	2	1	50.00

Whereas the percent mortality recorded here appears low it represents conditions at the time of discharge from the hospital. The ultimate results would approximate nearly one hundred percent.

"The prognosis of intracranial tumors is poor, if not almost hopeless. In most cases the growth proves fatal, especially when situated in the basal portion of the brain. Even when a diagnosis is made and localization can be established, the tumor may be difficult or impossible to remove, either from the accident of its situation or from the fact that its extent is not clearly defined. The most hopeful signs are slowness of onset, for in many cases this characterizes the tuberculomata, which may eventually undergo spontaneous cure. When the growth is of this nature, decompression may very largely relieve symptoms and prevent blindness. The course of the glioma is more rapid, and often proves fatal within twelve to twenty-four months. Death results from gradual exhaustion, or from tuberculous meningitis, or suddenly from surrounding oedema of haemorrhage into the tumor." (Pybus, F. C., The Surgical Diseases of Children, page 365.)

Burns constitute a comparatively small group causing only three and sixty-seven percent of the total mortality. The seriousness of this condition is shown by the fact that of ninety-seven patients admitted nineteen died from shock and toxemia, a mortality of nineteen and fifty-eight hundredths percent. Esophageal stricture might be included in this group rather than under trauma as they result almost entirely from lye burns. One patient died from starvation, a gastrostomy having been performed too late. For the most part these patients are now treated by the throat department by dilatation.

Trauma causes a small percent of the surgical mortality considering the number of accidents which injure children, only three and twenty-eight hundredths percent. I have mentioned oesophageal stricture above. Obstetrical paralysis itself does not cause death; these deaths reported were from contributing causes. Obviously the patient who died from concussion had a more severe brain injury. This leaves for consideration

Fracture of skull	49	5	10.20%
Cerebral hemorrhage	8	3	37.50
Subdural hemorrhage	1	1	100.00
Multiple injuries	3	2	66.66
Intra-abdominal hemorrhage	1	1	100.00

All conditions sufficiently grave to cause death in spite of treatment in the attempt to save life.

Under the general diseases, most of which were on the Surgical Service for transfusion, hemorrhagic disease of the newborn, purpura, hemophilia and lymphatic leukaemia, we are credited with nineteen deaths. The mortality of thirty-eight and forty-six hundredths is high for hemorrhagic disease of the newborn for which transfusion is supposed to be specific. Scurvy and Jacksonian epilepsy do not as a rule cause deaths in children.

There remains a small group called miscellaneous including hernias, hydroceles and undescended testes which might well be classed with congenital defects. Renal calculus is shown to be a rare but serious condition because of complications; seven cases, two deaths, a mortality of twenty-eight and fifty-seven percent. Rectal prolapse itself did not cause death but rather some intercurrent infection during the patient's stay in the hospital.

Conclusions:—

The factors entering into mortality in the surgical diseases of children are

(1) Nature of the disease or injury. This analysis shows that about fifty percent of the deaths result from infections, about twenty-five percent result from congenital malformations. Intestinal obstruction causes ten and eighty-three hundredths percent. Tumors are responsible for six and ninety-six hundredths percent. Burns cause three and sixty-seven hundredths percent. Trauma causes three and twenty-eight hundredths percent. General diseases cause four and six hundredths percent and a small miscellaneous group including hernias, hydroceles, undescended testes, renal calculus and prolapse of rectum accounts for the remaining one and ninety-three hundredths percent.

(2) Duration of the disease, or injury, before surgical treatment is carried out is of importance, especially in conditions, such as, intussusception and other forms of intestinal obstruction, acute appendicitis, burns, internal injuries, tumors, pyloric stenosis and collections of pus requiring drainage.

(3) Age of the patient. Holt has pointed out that the younger the patient the poorer the prognosis. This holds true for surgical as well as medical diseases of children.

Mortality in the surgical diseases of children may be further reduced by

(1) Prevention of infections, burns, trauma.

(2) Earlier diagnosis of surgical conditions with immediate and appropriate treatment.

(3) Attention to pre-operative condition of the patient as regards dehydration, lack of blood, acidosis, improper feeding and correction of same.

(4) Successful operations on children demand specially trained surgeons and attention to conservation of body heat, speed consistent with accuracy, careful hemostasis and gentle manipulation of tissues.

(5) After operation supply heat, treat dehydration and acidosis as occasion arises.

(6) The use of breast milk is of great importance in feeding infants after operation.

(7) Transfusions, exsanguination transfusions and intravenous medication with mercurochrome or gentian violet offer some hope for reduction of mortality in severe infections.

(8) Dakin's solution irrigations are of great value in appropriate cases of localized sepsis.

(9) Intestinal drainage above obstructions perhaps with more two stage operations will lower the mortality from this condition.

(10) Only earlier recognition of tumors can contribute to a reduction in their operative mortality. It is doubtful if this will affect the end results. Post-operative treatment with X-ray or radimu offers only a possible chance of cure.

(11) Spina bifida and hydrocephalus continue to be perplexing problems for the surgeon. The high mortality rate is only slightly reduced by surgical interference.

SOME ASPECTS OF THE CALCIUM METABOLISM OF INFANTS*

BY BENGT HAMILTON

In metabolism studies of infants where the intake and output of different substances are measured, important information may be obtained from the amounts of the substances retained and the amounts which pass through the body. The amounts passing through the body in breast-fed infants, where we have reason to believe that the intake is adapted to the requirements, may be assumed to represent approximately the amounts needed for maintenance, while the amounts retained are used for growth.

It is a well-known fact that the composition of the body changes during growth. A study of the substances retained from the food permits some of these growth changes to be followed step by step. Inasmuch as the composition of the body of the new-born baby is fairly well known, a comparison of its composition with the amount of different substances retained from the food, and used for the building of new tissues, makes it possible to draw fairly definite conclusions regarding some of the changes which take place in the composition of the body during growth.

One of the purposes of the present investigation was to find out whether or not any change in the calcium content of the body takes place during the earlier part of the first year of life. In order to determine this, the normal calcium retentions and the calcium content of the body of the normal infant at birth must be known. The reports on the calcium metabolism of normal, breast-fed infants collected from the literature are compiled in Table 1.* These figures show that the retention of calcium on the whole increases, as the infants grow older. In regard to calcium retention per kilo, the infants may be divided into two groups: i. e., infants less than three months old and infants above that age. In each group the values are fairly constant. It is quite striking that at the age of three months there seems to be a sudden increase in the retentions per kilo, as well as in the total amount of calcium retained.

The bodies of new-born infants, as determined from the analyses of several investigators, show an average calcium content of about 10 gm. CaO per kilo. The maximum being about 13 gm. and the minimum about 8 gm. By a simple calculation it can be shown that the body as a whole becomes relatively less rich in calcium after birth. If an infant after birth gained one kilo in 50 days, in order to keep the relative calcium content of the body at the same level as at birth he would have to retain at least 8 gm. CaO during this period. This would require a retention

*Read before the New England Pediatric Society, April 11, 1924.

*Such cases which were not strictly normal are, of course, excluded from this table; Blauberg's with a nutritional disturbance and Peiser's case "Band" with syphilis. Also those cases were excluded in which the infant did not receive a sufficient amount of food (Blauberg, Klotz) and the case of Klotz and the recently reported cases of Chi Che Wang et al. in which the breast-milk was of unusual composition. The average calcium content of breast-milk is about 42 mg. CaO per 100 cc. In Klotz's case it was 23 mg. and in the cases of Chi Che Wang et al. it varied from 74-107 mg. A picture of the average normal calcium metabolism can only be obtained from those cases in which breast-milk of the average calcium content is used.

of 160 mg. CaO per day and we see that during this period of life the infants usually retain less than half of this amount.

From the rather constant values which are given for the amount of CaO retained per kilogram, the rate at which this decrease in the calcium content of the body is taking place can be determined. This is calculated in the diagram (Fig. 1). The curves represent the calcium content of the body in three hypothetical cases; one with a high, one with a medium and one with a low calcium content of the body at birth. All three cases are assumed to have grown according to the normal figures given by Camerer. A retention value of 15 mg. CaO per kilo per day was used for the first three months and 25 mg. CaO per kilo per day after that period. In each of these three cases the relative calcium content of the body shows a decrease after birth and reaches its lowest point in the fourth or fifth month. Later, as shown in the diagram, the amount of CaO increases slowly.

TABLE 1

Calcium metabolism of healthy, breast-fed infants

(Values in g. per 24 hours.)

Author	Age in months	Weight	Intake	Feces	Urine	Total Output	Total Retent.	Retent per kg.	Percent. of Int. Retained.
Birk	New-born (colostr.)	3870	0.074	0.016	0.004	0.020	0.054	0.014	73
»	New-born (breast-milk)	2970	0.062	0.016	0.004	0.020	0.042	0.014	68
Peiser Gl. . .	2	3720	0.279	0.211	0.021	0.232	0.048	0.013	17
Tobler-Noll . .	2.5	4085	0.239	0.149	0.037	0.186	0.053	0.013	22
Lindberg I+II	2.5	4330	0.259	0.179	0.021	0.199	0.060	0.014	23
Muhl B—1 II	2.5	5490	0.310	0.198	0.021	0.220	0.091	0.017	29
» » III	2.5	5560	0.315	0.199	0.023	0.222	0.093	0.017	30
Michel-Perret .	3	4725	0.377	0.198	0.030	0.228	0.149	0.032	40
Malmberg, S. E.	3.5	5445	0.341	0.169	0.029	0.197	0.144	0.026	42
» O. G.	3.5	5440	0.328	0.162	0.013	0.175	0.153	0.028	47
Muhl, L. St .	4	5140	0.297	0.155	0.015	0.170	0.127	0.025	43
Schabad . . .	4	7700	0.364	0.164	0.019	0.182	0.181	0.024	50

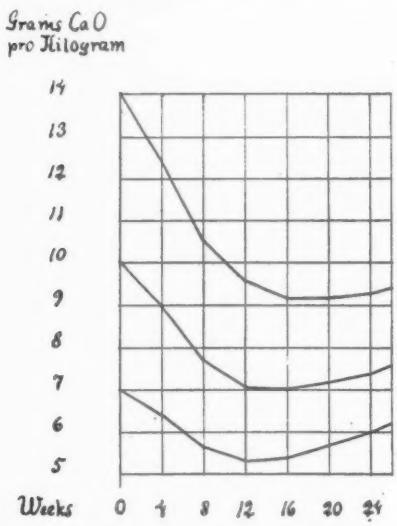


FIG. 1. The calculated decrease in the relative calcium content of the body in three hypothetical cases: One with high, one with medium and one with low calcium content of the body at birth.

Although, as shown by these figures, the relative calcium content of the body as a whole decreases after birth, it is still undetermined how or where this decrease takes place. As the soft tissues contain very little calcium, the decrease of the calcium content of the whole body might mean that the soft tissues are growing more rapidly than the bones. If this were the case, there would be a change in the general proportions of the body. If the skeleton was growing less rapidly than the soft tissues, the so-called height-weight index should become smaller. Pfaundler has shown, however, that during the first six months of life this index is about constant. Therefore it is probable that, during this period of life, there is no marked change in the body proportions. If this is true, then the decrease in the relative calcium content of the whole body after birth means that the bones are becoming poorer in calcium. As far as I can see, the striking discrepancy between the calcium content of the body at birth and the calcium retentions after birth cannot be explained in any other way.

It has been assumed by several writers that the body at birth contains an excess of calcium (a calcium depot) stored in the body during the last months of fetal life. This theory is in excellent agreement with the facts just mentioned. The decrease of the calcium content of the body may be interpreted as indicating the gradual consumption of this excess. According to the calculation on which the diagram is based, the excess would be consumed at the age of about three or four months. In fact, this is at the age when there is a sudden increase in the calcium retentions. After that time all the calcium needed for growth would have to be retained from the milk. Before that time, any inability on the part of the infant to utilize the calcium in the milk might for some time be without serious consequences, as the necessary amount of calcium might be obtained from the excess of calcium in the bones. But when the excess is consumed, inability properly to utilize the calcium intake would result in an insufficient supply of calcium for the growing bones. Possibly this is the explanation for the fact that in full term infants rachitis is rarely seen before the age of three months.

There are three factors all of which would tend to make the calcium content of the body reach a lower level than in the cases of Fig. 1. These factors are low calcium content of the body at birth, rapid growth, and abnormally low calcium retentions. All these factors are present in prematurely born infants. The calcium is stored in the body mainly during the last fetal

months, as a rule, therefore, the premature contains at birth somewhat less calcium per kilo than the infant born at full term. The growth of a healthy premature is proportionately much more rapid than the growth of a normal infant. And finally, it has been shown by the writer that the premature often has very low calcium retentions during the first months of life. It seems that these factors in nearly every case make the calcium content of the body of the premature decrease to that point where the bones show evidence of insufficient supply of calcium.

In normal infants on breast-milk it is reasonable to suppose that the intake is adapted to the requirements. The amount of calcium which daily passes through the body of such an infant, i. e. the total output of calcium, may therefore be supposed to correspond approximately to the amount needed for maintenance. It may be seen in the table how during the first months of life the most part of the intake is used for maintenance, only 17-30 per cent being retained. Later the intake seems to be about equally divided between these two functions. It may also be seen that, on the whole, the calcium output of these normal infants is fairly constant and without any relation to the calcium intake. The average output of calcium is about 200 mg. CaO daily, and it may therefore be concluded that about this amount of calcium is needed by breast-fed infants for some function other than the building of bones.

If we assume that this other demand for calcium is more important than the use of calcium for growth, then we may, perhaps, find an explanation for the low calcium retentions found in prematurely born infants. The writer found in his studies of prematures that these infants usually did not retain any appreciable amount of calcium as long as the calcium intake with the food was less than 200 mg. CaO daily. As soon as the intake exceeded this amount, however, the retention of calcium became normal. This might mean that these infants also require about 200 mg. CaO for daily maintenance, and that when they receive less than this amount with the milk nearly all the intake has to be used for this purpose.

The diagram Fig. 2 illustrates the facts just mentioned. Each column represents the calcium intake and output of an infant and the infants are ranged according to their intake. The cases are all the normal infants in the table and in addition the premature infants studied by the writer. It may be seen how the retentions are very small when the intake is below 200 mg., and how with increased intake the retentions become larger. An increase in the calcium retentions of the prematures could also be effected by artificially increasing the calcium content of the milk by the addition of calcium chloride. The writer found, however, that although the retention of a premature infant could be increased by calcium medication, the development of rachitic symptoms could not be prevented by this treatment.

The function of the calcium passing through the body is at present practically unknown. We know only that this constant flow of calcium is

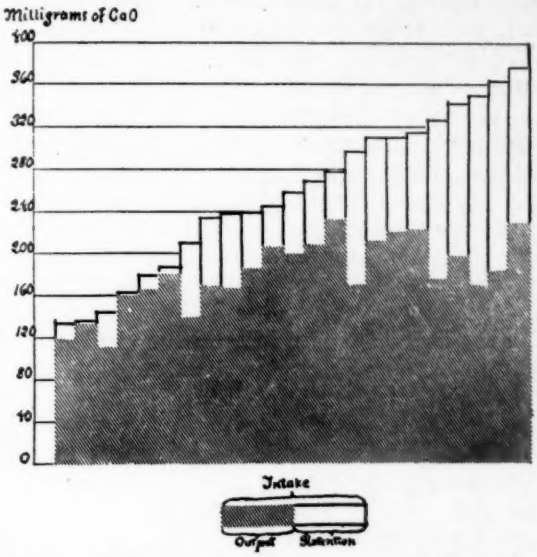


FIG. 2. The intake and output of calcium of 23 breast-fed infants; when the intake is below 0.200 g. CaO daily the retentions are small. The excretion is, on the whole, fairly constant.

necessary, and it is usually spoken of as the calcium needed for maintenance. It is obvious that an increased demand for calcium needed for maintenance would make less calcium available for the growth of the bones, and it is conceivable that this is the case in those conditions (absence of sunlight, malnutritional disturbance) which play such an important role in the production of rickets.

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CANADIAN MEDICAL ASSOCIATION

At the annual meeting of the Canadian Medical Association held in Ottawa from June 17 to 20, under the presidency of Dr. John F. Kidd, Ottawa, the following officers were elected for the ensuing year: *President,* Dr. David Low, Regina, Sask.; *editor of the Canadian Medical Association Journal,* Dr. Alexander D. Blackader, Montreal, Que.; *treasurer and managing editor,* Dr. Alfred T. Bazin, Montreal; *chairman of council,* Dr. Alexander Primrose, Toronto, and *general secretary,* Dr. Thomas C. Routley, Toronto.—*Science.*

PIGMENT AND IRON IN THE INFANT'S DIET—THEIR RELATION TO HEMOGLOBIN FORMATION*

BY LEWIS WEBB HILL, M. D., BOSTON

THE purpose of this paper is to attempt to show that there are good reasons for adding other foods than milk and cereal to the diet of infants during the second half year of life, but that these foods should be selected with a definite knowledge of what they contain and what purpose they serve.

1. *Nature of Hemoglobin.*

Hemoglobin consists of two parts: an iron containing pigment, haematin, and a protein, globin. It is a definite chemical compound, constant in composition, and although it contains only .3% of iron, this is of vast importance, for the oxygen carrying power of hemoglobin depends directly on the iron which it contains. It must be remembered that as hemoglobin is a definite chemical compound, although of somewhat loose constitution, it is not possible to synthesize it unless there is present in the organism a sufficient amount of each one of its constituents, the protein globin, the pigment haematin, and iron. Let us consider in turn each one of these constituents.

(a) Globin.

Globin is synthesized from the protein of the food and is not particularly important to consider, as under ordinary conditions of diet there is enough protein furnished for this purpose.

(b) Haematin.

Haematin is a rather complicated compound, closely related chemically and biologically to chlorophyll, and to the group of pigments which occur so commonly in plant life, the carotinoids and xanthophylls. All of these substances are chemically similar in that they contain the pyrrol ring, a certain combination of organic radicles. It is probable that the haematin of all mammals comes directly or indirectly from chlorophyll and the carotinoid pigments, as it is of too complex a nature to be synthesized from its elements in the animal body. These substances contain no iron, but furnish the "bausteine," to use a German expression, for the vitally important animal pigment, haematin. Chlorophyll is contained in all green leaves, such as spinach, and the carotin and xanthophyll pigments in vegetables and fruits such as carrots, squash and oranges and also to a slighter extent in the outer layers of cereal grains, such as barley, wheat and especially oatmeal. Certain foods of animal origin, notably egg yolk and the fat of milk also contain carotin and xanthophyll pigment, derived directly from the vegetable kingdom. It is a fact that if laying hens are fed on food containing only small amounts of these pigments, the yolks of their eggs are poor in pigment, and it has been shown by Palmer and Eccles[1] that the carotinoid content of milk fat is directly dependent upon the amount of pigment in the cow's food. Cows fed upon green fodder always have a much more yellow milk than those not taking green fodder.

It is probably true that in the exclusively milk fed infant, whether taking breast or bottle, the carotinoid pigment of the milk fat is the principal source of haematin, and that it is derived in the older infant from egg yolk, spinach and the other green vegetables, orange juice, and to a small extent, the cereal grains. Beef juice, containing as it does haemoglobin, is also another source from which the infant may derive blood pigment. The haematin of the blood is the material from which the bile pigments are formed, and red blood cells are continually being destroyed, probably in the spleen, and their haemoglobin being liberated, to serve as a source for these pigments. It has been calculated by Abderhalden that each day there is in the adult .5 gm. of bile pigment excreted. This comes only from haematin, and it would take 12.5 gm. of haematin, representing nearly 100 c.c. of blood, to furnish this amount of bile pigment. So that, although infants after the eighth and ninth months do not require as much pigment with which to form additional blood as the younger infant, their growth being slower, they break down considerably more blood each day to form bile pigments. Their total requirement is, therefore, greater. *Haemoglobin cannot be made from iron and protein alone, the pigment is of equal importance, a fact which is not generally appreciated.*

(c) Iron.

It is probable that when in the infant haemoglobin manufacture is insufficient, this is due more often to lack of iron than to lack of pigment or protein. Milk is a food which is very poor in iron. Human milk contains about .55 mgm. of Fe per litre, cow's milk only about .17 mgm. The older figures given for iron in milk were higher than this, but are erroneous, due to faulty methods of analysis. This amount of iron, whether in cow's milk or in human milk, is insufficient to supply the iron needs of the rapidly growing infant. This fact would seem at first glance to be an oversight of nature, but Bunge[2] showed in 1889 that the young of many, and presumably of all mammals, are born with a reserve supply of iron in the liver, which is drawn upon to supplement the iron of the food. This is deposited during the last portion of intra-uterine life. Bunge found that the iron deposit steadily diminishes as the young animal grows older, and reaches its lowest point about the time the animal is ready to take solid iron-containing food. He also found that the longer

*Read at the Schenectady County Medical Society, April 8, 1924, and at the New England Pediatric Society, April 11, 1924.

the suckling period is for any species of mammal, the larger the amount of iron deposit in the liver. The guinea pig, which is born almost fully developed, is able to run about soon after birth, and nurses only two or three days, after which it begins to take green fodder containing iron, was found to have the smallest iron deposit of any animal studied. In the human infant, which suckles a relatively long time, the amount is large, and is proportionately about five times as much as that contained in the adult liver. In the newborn infant there is more iron in the liver than in the blood, according to Mayer[3], three times as much.

It seems to have been definitely proved by Bunge's work, as well as by that of a number of other investigators (Hougounenq, Abderhalden, Mayer, Langstein, and Edelstein) that the human infant is born with a reserve supply of iron in its liver, which is intended to last until he can begin to take food which contains more iron than the small amount contained in milk. It is probable that this iron reserve is used up more quickly in bottle than in breast fed babies.

Alimentary Anemia

Infants who are fed on an exclusively milk diet after the eighth or ninth month, not infrequently develop a rather severe anemia, presumably due to the lack of iron and also possibly of pigment in the food. This type of anemia is also seen in premature infants, twins, and in the infants of debilitated or anemic mothers. It is characterized especially by a low hemoglobin (15 to 60%) and a not proportionally decreased number of red blood cells. It is, therefore, somewhat analogous to chlorosis, and has been called by some the chloratic anemia of infants. The white cells show no particular abnormality. The spleen is usually not enlarged, and the prognosis is good. This anemia is rarely seen before the eighth or ninth month, except in premature infants, when it may occur as early as the third month. It has been held by some that not only is the lack of iron on an exclusively milk diet the cause of the anemia, but that the fatty acids of the milk are hemolytic, and when absorbed actually destroy red blood cells. There is little evidence to support this view, and most observers are agreed that it is due either to a too small reserve iron deposit in the foetal liver, to an insufficient supply of iron in the food, or to a combination of both factors.

Lichtenstein[4] found in thirty-six healthy premature infants an average hemoglobin percentage of 40% at about the third month, and an average red count of three million. He also found in a careful metabolisn experiment on 4 premature infants who were doing well and who were fed on human milk, that there was a negative iron balance of about .25 mgm. per day. He gave one premature who had had a negative iron balance 50 mgm. of iron per day in the form of ferric chloride mixed with milk, and found that there was a retention of 1.7 mgm. per day. Kunckel[5] in a group of premature infants found that the average hemoglobin percentage at the third month was 46.5. He thought that lack of sunlight might have someting to do with it, and so kept a control group of prematures in the sunlight, but found that this made no difference. Lande[6] found in a group of 39 newborn premature infants a hemoglobin percentage of 100 to 140 (about the figures for full term infants) which sank to about 60% at the third month.

Most of the iron in the foetal liver is deposited during the last part of pregnancy, and it would, therefore, be expected that if the mother were anemic, or if she had a toxemia of pregnancy and was fed little iron-containing food in the last few weeks, or if her appetite was noticeably poor, there would be a diminished iron deposit in the liver of the foetus. I have only recently had a patient of nine months with a marked anemia of the alimentary type whose mother had to be in bed during the last six weeks of her pregnancy and who ate very little on account of a toxemia. This is also borne out by some interesting experimental work on animals. McGowan and Crichton[7] kept sows on a diet poor in iron for two or three weeks before delivery. The young pigs which were born were pale and sickly and had hemoglobin percentages of about 15%. When ferric oxide was given to the sows while they were kept on exactly the same diet which prviously produced anemia in the offspring, the young were born healthy, and anemia did not develop. Schmidt[8] fed adult white mice on an iron poor diet of milk and rice, and was not able to produce anemia in them, but their offspring showed marked anemia and did not grow as well as controls. He found by microchemical methods that there was no iron deposit in the liver of these anemic mice, but was able to cure the anemia by the addition of iron oxide to the diet. Brinchmann[9] fed young guinea pigs on an iron poor diet and was able regularly to produce anemia. If he added to the diet of control animals an inorganic iron preparation (liquor ferri album) this regularly prevented the development of the anemia.

These experiments suggest that it is very desirable to add iron at an early age to the diets of infants who are suspected of coming into the world with an insufficient iron deposit, and that inorganic iron may be used. The question of the absorbability and worth for blood making of inorganic iron preparations has for long caused much discussion. The majority of observers today believe that inorganic iron can be absorbed and used to make hemoglobin, when there is a deficiency of iron, but that it is not so efficient as iron given in iron containing food. This may be due to the fact that iron containing foods usually also contain pigment which is as necessary for hemoglobin formation as is iron.

The Iron Needs of Infants

If we know the weight of an infant at different ages, the blood volume for a given weight and age, and the amount of haemoglobin per 100 c.c. of blood, it is possible to estimate with considerable accuracy the amount of iron added to the blood in that particular baby, as he grows from day to day. There are accurate figures available[10] for the blood volume and for the haemoglobin values at different ages in infancy[11].

From these figures I have made the following calculations:

Age	Weight	Blood volume	Gms. Hgb. in body	Milligrams Fe in total blood
2 weeks	3,500 gm. (7½ lbs.)	385 c.c.	70 gm.	210 mgr.
6 months	7,500 " (16½ lbs.)	825 "	111 "	330 "
1 year	10,000 " (22 lbs.)	1,100 "	134 "	402 "

It may be seen from the table that there is a much greater addition of haemoglobin during the first six months than during the second six. This is because there is so much more rapid growth during the first half year, and also the number of grams of haemoglobin per 100 c.c. of blood is normally less at one year thar at 6 months. If these figures are correct, the normal infant from the age of two weeks to that of six months adds unto himself in the form of haemoglobin about .80 milligrams of Fe per day, and during the second half year about .4 milligrams per day. This iron comes partly from the ingested food and partly from the iron reserve in the liver.

Do these figures represent the amount of iron that must be supplied in the diet? They do not, for as long as there is a supply of iron in the liver, which may be drawn upon, it is not possible to arrive at any very accurate conclusions as to how much iron is needed in the food. Furthermore, hematin is constantly being broken down to form bile pigments, the iron from this is set free, and probably partly stored again in the liver, probably partly excreted into the intestine to be reabsorbed and used over and over again. It may be seen from these two statements how extremely complicated the question is, and inasmuch as we do not know exactly how long the liver iron with which the infant comes into the world lasts, it is not possible to arrive at any very accurate conclusion as to how much iron he needs in his food. This applies, of course, especially to young infants. There are no metabolism experiments on record for infants over 6 months of age, and few for infants under 6 months. These are invalidated for the reasons given above, for as long as the foetal iron deposit is taking part in iron metabolism, it is not possible to determine the iron needs in this way. There is, therefore, at the present time no way available for determining by direct investigation the amount of iron that should be given to a growing infant to cover his iron needs. The best that can be done is to calculate indirectly from other data, by which it is possible to arrive at conclusions accurate enough for practical purposes.

We have seen that the infant from 2 weeks to 6 months of age adds to his blood volume about .8 milligrams of iron per day and .4 milligrams per day from 6 months to the end of the first year. These figures represent the amount which must be retained by the body for increase of blood volume and does not include that which is necessary to replace the iron which is constantly being set free from its combination in hemoglobin or in the body cells, and lost. The amount lost per day is not inconsiderable; the professional fasters, Cetti and Breithaupt, each lost about 7 milligrams per day while on a starvation diet (Sherman).

We know from clinical observation that the iron reserve in the liver plus the small amount of iron in the food, whether it be breast milk or cow's milk, suffices for the iron needs of the first six or eight months at any rate, as normal full term infants do not develop alimentary anemia before this time, and usually not until considerably later. So it makes no difference to us what the needs may be; they are covered by nature.

From a practical point of view, as regards the addition of iron-containing food to the diet, we are not interested in the iron needs until the last few months of the first year of life, when it is likely that the foetal iron deposit is exhausted.

In a child of one year about .4 milligrams of any iron that is retained each day is used for growth of the blood. In order to have a retention of .4 milligrams it would be necessary to have an intake of .6 milligrams, as the absorption of iron is only about 60%[12]. An intake of .6 milligrams will, therefore, cover the needs for blood growth. How much beyond this is needed to replace hemoglobin which is destroyed, and for other purposes? In the adult the question of blood growth need not be considered, and the whole question of iron metabolism is much simpler than in the infant for obvious reasons. It is generally agreed that an intake of about 10 milligrams per day covers the iron needs (Sherman). We can calculate from the adult figures approximately how much an infant needs to replace lost iron, and if we add this figure to the figure already obtained which represents the amount that must be ingested for purposes of blood growth, we shall arrive at a rough estimate of the total iron need. If an adult of 150

lbs. needs 10 milligrams per day, an infant of 20 pounds needs, in round numbers, 1.5 mgm. per day. 1.5 milligrams added to .6 milligrams equals 2.1 milligrams, which is an estimate of the total amount of iron that it is desirable to supply in the daily ration of an infant about a year old. The chances are that this is a rather liberal estimate, and is probably somewhat above the actual needs, as a not inconsiderable amount of the iron excreted in the intestine is reabsorbed and used over and over again.

The Addition of Iron-Containing Foods to the Diet

From what has been said an obvious conclusion is drawn: that it is desirable as soon as the iron deposit in the liver of the infants is exhausted, to add iron-containing food to the diet. There are no experimental data to show when this time is reached, and all we have to go by is clinical observation. Clinically, we know that the normal full term infant does well and does not become anemic on an exclusively milk diet for 8 or 9 months at any rate. Premature infants, twins, or infants from mothers who were anemic or sickly during pregnancy fall into a different category, and will be discussed later.

It has been the practice for the last few years of many pediatricians, to begin a mixed diet of cereal, various vegetables, egg, and potato at a very early age, often at the fifth or sixth month. Others have somewhat caustically criticized this procedure and have advised withholding such food until much later. As is usually the case, the truth should lie between the two extremes. Every pediatrician would agree that cereal should be given during the last part of the first year; it teaches the baby how to eat from a spoon, furnishes extra calories, and prevents an excessive intake of milk. There can be no argument here; let us consider then, critically and impartially, the value of the other foods which have been recommended. It would seem that the only purpose of giving other food than milk, cereal and orange juice to a baby before he is a year old is to supply him with iron and with pigment. It is true that the foods in question contain a considerable amount of other metallic salts, such as those of calcium and sodium, and also vitamines, but the infant is supplied with salts, with the exception of iron, far in excess of his needs, by cereal and milk. Milk is rich in vitamine A and B, and vitamine C is supplied by orange juice. Even if milk is cooked, vitamines A and B are not destroyed.

Let us assume, then, that the purpose of feeding a mixed diet, other than cereal, to young babies is to furnish iron and pigment, and let us consider the foods used.

The following foods come into consideration:

Green vegetables.
Egg.
Potato.
Apple sauce.
Prune sauce.
Beef juice.

Of all the vegetables, spinach contains the most iron, twice as much as string beans, four times as much as carrots, three times as much as asparagus, and twice as much as peas. Furthermore, finely strained spinach is less likely to upset a baby's digestion than the vegetables which contain more starch, such as carrots and peas. After spinach has been cooked it contains practically no starch, and vegetable starch, enclosed in its tough cellulose envelope, is very likely, if fed to small infants, to escape digestion, but to undergo fermentation in the large intestine. Spinach is the only vegetable that is efficient when given in small amounts as a source of iron supply, and in the writer's opinion is the only one that is desirable to use during the first year of life.

Egg white is simply an albumin and contains practically no iron, egg yolk contains a large amount, all the iron, and all the pigment in fact, that makes blood for the newly hatched chick, without the introduction of any material from the outer world. It is, therefore, an important food with which to supply iron and blood pigment to the infant. It has also a marked antirachitic property, which has been recently shown by Hess[13] and if subsequent observations show it to be anywhere nearly as potent an antirachitic as cod liver oil, it should replace this unpleasant substance as an antirachitic, both in the prophylaxis and treatment of rickets. Beef juice contains a moderate amount of pigment and iron. There is some evidence to show that iron contained in hemoglobin, as it is in beef juice, is not as well utilized by the organism when ingested, as the iron of egg yolk or of vegetables. Of the fruit sauces commonly used, apple and prune, prune sauce contains a surprisingly large amount of iron, at least six or seven times as much as apple sauce.

Potato is not rich in iron, containing only about a third as much as spinach. Neither is it to be compared to cereal foods as a source of energy, for it contains only about 20% of starch. If potato is examined under the microscope the individual starch granules are seen to be enclosed in an unusually thick cellulose sheath, which makes potato starch particularly difficult to digest. Clinical observation bears this out, and potato is in most cases not only a useless, but a positively bad food for infants during the first year. We see then that egg yolk, spinach, prune sauce and beef juice are the most valuable foods as regards their iron and pigment content, and from clinical observation we know that they do not upset infants when given in reasonable amounts.

For several reasons egg yolk is the best of all these foods; it contains a larger amount of iron

than any of the others, it contains pigment in large quantity, it has a not inconsiderable caloric value, it is antirachitic, and it is easy to digest. It has been the writer's practice for the last two or three years to begin to feed egg yolk at about the sixth month to all normal feeding cases, and he has never seen it cause digestive disturbance or anaphylactic reaction. When egg idiosyncrasy exists, it is far more likely to be to egg white than to egg yolk. The egg is hard boiled, the yolk separated from the white, and finely grated. At first only about a teaspoonful is given, fed with a spoon and moistened with a little milk. In the course of a few days half the yolk is given, by the 9th month the whole yolk. If egg yolk is used, there is no need for spinach or beef juice, but there certainly can be no objection to giving them, and a good way to do is to use egg yolk one day, and spinach with beef juice on the next day, in order to vary the diet. Personally, I should prefer not to begin spinach or beef juice until the ninth month. It must be remembered that a little spinach goes a long way, and a baby one year old or under should not take more than a tablespoonful. There is a great deal of difference between giving spinach and between giving a *lot* of spinach; it should always be remembered that it is given for a definite purpose, and that only a small amount is needed for this purpose. Finely strained prune pulp or prune juice is a good addition to the diet, and contains a large amount of iron. A tablespoonful a day is enough to give to a child of a year. The following table shows the amount of iron in definite amounts of the various foods. The most complete and accurate tables for the iron content of foods are by Sherman[14], who has for a long time been especially interested in this particular subject. His tables give the amount of iron calculated as Fe per 100 grms. of dry uncooked food. In order to obtain the correct figures for such foods as oatmeal, prunes, spinach and rice, I weighed out 100 grms. of each, cooked it exactly as it would be cooked for an infant, found out how many level tablespoonfuls of cooked substance was obtained from 100 grms. of dry uncooked substance, and was thus able to calculate the iron content per tablespoonful. Spinach loses about a quarter of its iron when it is cooked, and I have allowed for this in the figure given for spinach. The figures for milk are from recent analyses by Langstein and Edelstein:

Fe Content of Foods*

Human milk	1 litre	.55 mgm.
Cow's milk	1 litre	.17 "
Egg yolk	1	1.4 "
Spinach	1 level tablespoonful	.59 "
Beef juice	1 ounce	.20 "
Prune sauce	1 level tablespoonful	.70 "
Oatmeal	1 level tablespoonful	.10 "
Rice	1 level tablespoonful	.05 "

*All calculated as Fe. To express as Fe_2O_3, multiply by 2.9.

It may be seen from the table that egg yolk is the most efficient food with which to supply iron, that next to it come spinach and prune sauce, and that it is not easy to make up a practical dietary for an infant of one year which will contain the required 2 milligrams of iron, without the use of these foods. Potato is of little value to a small infant as a source of iron or of anything else, and may actually be harmful. It takes a relatively large amount of such vegetables as carrots, asparagus and string beans to supply enough iron to be of any value, and these vegetables, if given in large amounts to young infants, are distinctly harmful.

The conditions as regards premature infants, twins and infants of debilitated mothers are somewhat different, and for these extra iron must be supplied earlier. It seems true that nearly all premature infants become anemic if they have to rely upon milk alone as a source of iron, and that this anemia is likely to begin at the third or fourth month. The babies in these groups should begin to receive extra iron at the end of the first month.

It would seem rather unwise to give spinach or beef juice at such an early age. Dr. De Sanctis of New York tells me, however, that he has given soft boiled egg yolk mixed with the milk to infants as young as one month. I have always used saccharated oxid of iron, or spinach water for babies as young as this, but am going to try soft boiled egg yolk, as if it is well borne it should be much more efficient than either of these. Spinach loses about a third of its iron in the water in which it is cooked, so spinach water contains a considerable amount of iron, and may be used in the milk formula instead of ordinary water. Although there is still some dispute concerning the value of inorganic iron, such as the saccharated oxid, in hemoglobin manufacture, there is considerable recent evidence to show that in young animals, at any rate, it is used for this purpose, and it is probably advantageous to give it to all premature infants as a routine after the first month. It is best given in powdered form, a pinch or two, three times a day, mixed with a little milk, water or orange juice.

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483 Beacon St.

THE IMPORTANCE OF COD LIVER OIL AS AN ANTI-RACHITIC AGENT*

BY JOSEPH GARLAND, M. D., BOSTON

INFANTILE rickets, sometimes accompanied by its evil associate, tetany, has come to be recognized as perhaps the most important of the diseases of childhood, furnishing, as it does, a pathological soil fertile for the acute and chronic infections. Although occasionally recognized in the bones of archaeology, rickets, however, was not an important disease of antiquity. There are logical reasons for this. The early civilizations flourished in warm and kindly climates where much of life was spent out of doors under conditions that did not favor a disease of improper housing, poor hygiene and lack of sunlight. It was not, in fact, until the industrial reorganization of the last two centuries sent people into the factories to work and into the towns to live that rickets made its appearance as a universal concomitant of life in the temperate zone. Populations that had been accustomed to moderately settled farming districts, living much of their lives in the open, were attracted to the towns to work and adopted for their domiciliary arrangements the overcrowded, poorly lighted dwellings of the city. It was in this period that rickets became a disease of importance.

It must not be supposed, however, that life on the farm was in its nature opposed to the development of rickets. It was not uncommon, in the farming sections of England, for an infant, born in the fall or early winter, to spend the first few months of its life entirely in one room. Such infants often became rachitic.

Various views have been advanced and various theories have been maintained as to the etiology of this disease. The most important of these have been the dietary, which should include the vitamin theory, the general hygiene theory, and the sunlight theory. It has been only through the awakened interest and renewed investigations of very recent years that much of this confusion has been cleared up and certain facts have been proven so conclusively as to be very generally accepted. With this renewed study has come an appreciation of the extreme prevalence of the disease and the recognition of the fact that a large percentage of artificially fed babies as well as many who are nursed at the breast suffer from it to some degree. Its importance, we now realize, lies not only in its direct effects with bony deformity, defective dentition, digestive disturbances and anemia, but also in its complications, for it so reduces the resistance of the individual as to render him an easy victim to pneumonia, tuberculosis, otitis and other infections.

It is now known that the development of rickets, whatever the environmental factor may have been—and the absence of sunlight is the most striking—is intimately associated with the metabolism of calcium and phosphorus. Hess and others[1] have shown that in moderate rickets the phosphorus or calcium or both may be moderately lowered in the blood serum, that in severe rickets the phosphorus is markedly reduced, even in the breast fed, while the calcium may or may not be lowered, and that in tetany the calcium is always reduced, while the phosphorus may or may not be altered. They found that in forty per cent. of their cases of tetany some rickets was present, and express the belief that rickets, and rickets associated with tetany, represent two phases of the same disorder.

There can be little doubt, in the light of recent investigations, that the metabolism of calcium and phosphorus is greatly and beneficially influenced by sunlight and similar agencies. Hess and Gutman[2] showed in 1921 that the inorganic phosphates of the blood could be raised to normal levels by frequent direct exposure to the sun's rays, the ultra violet ray furnishing the necessary factor. The curative action of this ray has also been demonstrated on rachitic bones. Hess and Lundagen[3] found that, coincidental with the seasonal variation in the sun's spectrum, went a tide in the inorganic blood phosphate, reaching its lowest ebb in March. Calcium, although more stable, also varied, the peak in the incidence of tetany occurring a little later in the spring than does that of rickets. Accompanying the fall in the calcium, reaching its ebb in May, comes a rise in the phosphate to its summer normal level of between 4 and 5 mg. per hundred cubic centimeters of blood.

The retention of calcium and phosphorus in the body under the influence of ultra violet radiation has been demonstrated by Orr and others[4], and Hoag[5] has noted a marked beneficial effect from the treatment of tetany with ultra violet radiation. In eleven cases of infantile tetany treated with ultra violet radiation and four with cod liver oil by Hoag, a low serum calcium concentration and mechanical and electrical hyperirritability were used as criteria. Cod liver oil was found to cause a gradual increase in the serum calcium over a period of several weeks, while ultra violet radiation in increasing doses caused a return to normal in an average of fourteen days.

Park[6] has shown that in rickets, also, the effect of cod liver oil in curing and protecting against the disease is similar to that of sunlight. and Park, Guy and Powers[7], experimenting with white rats, demonstrated that cod liver oil added to the diet furnishes something which enables the body to utilize lime salts, and makes its metabolic processes, at least in respect to calcium and phosphorus, much more efficient. In this activity

*From the Pediatrics Department of the Boston City Hospital.

there is a great similarity to that of radiant energy as furnished by sunlight or the artificial ultra violet ray.

Hess and Weinstock[8], experimenting further, have attempted the feeding of cod liver oil to rats during pregnancy and lactation, but have found that it does not thus protect the offspring against rickets, and is not excreted in the milk.

Various other protective and curative measures have been attempted. Casparis, Shipley and Kramer[9], by clinical and blood tests on infants and rats, have shown that egg yolk contains the antirachitic principle and advise the feeding of one or two eggs a day to infants. The addition of a chlorine ion in the form of hydrochloric acid or calcium chloride has also been shown to stimulate the ionization of calcium and phosphorus, with clinical improvement resulting, but such improvement is transitory unless the fundamental cause of the disease is treated by radiant energy as furnished by sunlight or the ultra violet ray, or by the fat soluble factor as contained in cod liver oil or egg yolk. This factor is lacking or insufficient in the fat of milk.

A class of infants with whom suitable antirachitic measures must be instituted early and vigorously is composed of those born prematurely. Calcium and phosphorus are stored in the body of the infant during the later months of pregnancy, consequently those prematurely born are deprived of a considerable amount of the store to which they are entitled. Moreover, in the very nature of the extreme care to which these infants are subjected, the normal antirachitic factor of exposure to direct sunlight is lacking. Many such infants develop rickets and develop it during the early months of life.

The growth stimulating factor, or fat soluble vitamin A, the lack of which may give rise to blindness from xerophthalmia, is also of importance, but is less frequently lacking, owing to its greater distribution among the fats, being present in protective amounts in butter fat, although to a less degree than in cod liver oil. Bloch[10] has noted the increase in xerophthalmia in Denmark during a period of the war when fats containing the A vitamin were lacking in the diet. Xerophthalmia and rickets are rarely encountered in the same child, hence he concludes that rickets is not due to a lack of this vitamin.

The influence of a reliable form of cod liver oil on the blood calcium and phosphorus has been noted on the Pediatrics Service of the Boston City Hospital, where all infants receive two drams per day as a routine measure.

The following cases will serve as an illustration of this effect:

1. C. B. 3 months. mild rickets.

	Ca, mgm. per 100 c.c. of blood.
1/14/24	7.7
2/29/24	11.0

2. E. K. 2 years. rickets.

	Ca, mgm. per 100 cc.	P, mgm. per 100 c.c.
1/31/24	8.8	2.63
2/13/24	9.15	3.03

3. L. Q. 15 months. rickets and tetany.

	Ca, mgm. per 100 cc.	P, mgm. per 100 c.c.
1/28/24	8.5	2.78
2/11/24	10.4	4.2

4. T. L. 6 months. rickets and tetany.

	Ca, mgm. per 100 cc.	P, mgm. per 100 c.c.
3/3/24	5.6	5.1
3/18/24	8.04	5.8

Cases 1 and 4 received also tenth normal hydrochloric acid for a short period, but as has been pointed out, its effect is only for the duration of its use.

Guy[11] has collected interesting historical data on the early use of cod liver and other fish oils. The use of fish oils is mentioned by Hippocrates, and Pliny reports the employment of the liver oil of the dolphin both internally and externally in certain afflictions of the skin. The first recorded use of cod liver oil by physicians is by Darbey at the Manchester Infirmary in 1789, at which time it was so popular a remedy for chronic rheumatism that Percival, in 1771, had entered it in the British Pharmacopeia. Its use in so-called scrofula and rickets was known to the Dutch medical profession in 1822, and Schutte, in 1824, published case histories of rickets cured by the oil. In the same year Schenck reported its successful employment in four cases of rickets, and Rosenstern, in 1910, reported cures in cases of early rickets and tetany.

Much of the oil originally used medicinally has come from Finmarken and the Lofoten Islands in Norway, and for a long time it was considered that Norwegian oil was essentially superior to other products. Recent investigations by reliable commercial firms have tended to destroy this belief. Under crude conditions of production, and with much of the production as it at present exists, unselected livers are used, including not only spotted and wormy livers, but also the livers of ling, hake, coal fish, dog fish and occasionally sharks, just as the run of the net hauls happens to come. The oil from these livers has been rendered by the "sun trying" or "rotting" process, whereby, due to the heat of the sun and the process of putrefaction, the liver cells are broken down and the oil rises to the surface where it is skimmed off, barrelled, and sold to oil brokers who further refine it by freezing to remove the stearin, deodorizing, decolorizing, and alkalinizing to neutralize the fatty acids. These procedures, it has been shown, have a definite deleterious effect on the content of vitamin and antirachitic substance.

Shore fishermen, bringing in relatively small

catches daily, have been in the custom of rendering their oil in this fashion and holding it in open barrels until sufficient had accumulated to sell to the broker. Off-shore fishermen, making trips of from two to six weeks in duration have allowed the same process to take place on deck, the degree of putrefaction depending on the duration of the trip and the condition of the weather. As a result of these methods the strong taste and odor accruing to the oil has come to be so definitely associated with it that manufacturers of adulterated oil have flavored their product with rotten herring in order to give it the proper atmosphere.

Modern methods, as applied by reliable firms, consist in the selection of the fresh livers as they arrive at the landing stage, selecting only healthy gray livers that float in water as an indication of their oil content, rendering the oil immediately by the application of direct steam at as low a temperature as possible, clearing by chilling and removing the stearin, and bottling in colored glass to minimize the possible effects of light and oxidation. Such oil is almost colorless and is largely devoid of the unpleasant taste and odor usually associated with it. Most firms test the oil for its vitamin A content and some for its antirachitic effect on the white rat.

Other factors also enter into the production of a potent oil. Holmes[12] has shown that oil from emaciated fish in the spring, after spawning and before feeding, is less potent in vitamin than is the oil from the plump fish later in the season; and Johnson[13] has pointed out that the fish found in the vicinity of Newfoundland have migrated in March from Greenland to Labrador where they spawn. They then continue their migration to the northeast coast of Newfoundland, arriving there in June and July, shortly before the caplin appear. When the caplin and later the boneless squid arrive, the cod feast on them in abundance and become fat, with livers containing an oil of a high degree of potency.

The body oil of the caplin was also tested for its vitamin content and antirachitic activity, which were found to be high, and its feeding habits were studied, which consist in the ingestion of large quantities of such marine organisms as copepods, amphipods and decapods, which in turn subsist on marine algae. The caplin and boneless squid do not migrate to the more southern waters, hence the cod from the northern coasts are considered more valuable than those from the shores farther south.

Holmes[14 15] has also reported on the vitamin potency of pollock and hake liver oils and find that they compare favorably with that from the cod, and there is no reason to doubt that the body oils of many fish may be as useful as that from the cod, although in the Bay State the codfish will probably continue to reign supreme. Deuel and Holmes[16], working on the digestibility of cod liver oil, Java-almond, tea-seed and watermelon seed oils, deer fat and blended hydrogenated fats, have further demonstrated its coefficient of digestibility to be 97.7 per cent.; greater than any of the other fats studied.

The exhibition of an unselected jobber's oil followed by a selected reliable oil on the same patients on the Pediatrics Service of the Boston City Hospital has seemed to demonstrate, by blood and clinical findings, the superiority of the latter product.

As regards digestibility, vitamin A content, and especially the antirachitic factor, cod liver oil must be considered as a most valuable adjunct to the diet of infants, and its use in sufficient amounts (two drams a day) should be universal in this climate and under present conditions of life. Its value as a preventive and cure for rickets is second only to that of direct sunlight and ultra violet radiation. In prescribing cod liver oil the reliability of the brand should be considered, and when possible its antirachitic value should be known.

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CALCIUM LACTATE IN MIGRAINE

The Therapeutic Gazette, of June 15, 1924, quotes Bigland, in *The British Medical Journal*, of December 15, 1923, on the use of calcium lactate in the treatment of migraine. According to Bigland a fresh supply of calcium lactate in tablet form must be carried constantly by the sufferer who takes 30 grains at the first sign of the approach of an attack as evidenced by the ocular aura. No curative claims are made, but it is believed that by this means attacks may be aborted.

HOSPITAL WASTE

If superintendents of hospitals would have a copy of Dr. John T. Bottomley's article in the August issue of *Hospital Progress*, read once or twice a year at a staff meeting, a considerable amount of useless waste might be avoided.

JUVENILE DIABETES TREATED WITH INSULIN—REPORT OF A CASE*

BY CLARENCE F. FRIEDMAN, M. D., BOSTON, MASS.

It is well known that, before the discovery of insulin, cases of severe juvenile diabetes were considered practically hopeless. The case reported here adds more evidence to show that this disease can now be controlled completely by this new agent. It suggests, also, that rules concerning the time for injection of insulin might be disregarded when certain difficulties arise which do not respond to the usual methods.

Case Report:—F. G. age 11 was admitted to the Children's Medical Service of the Massachusetts General Hospital June 21st, 1923. There was no family history of diabetes. Aside from the usual infectious diseases of childhood his past history was negative. One year before admission the symptoms of diabetes appeared. He was placed on a fairly strict diet but in spite of this he lost weight and his symptoms persisted. For two weeks before admission he was very drowsy.

The positive findings in the physical examination were as follows: a pale, thin, semi-comatose boy; hyperpnea and acetone breath; slightly enlarged tonsils; some pyorrhea; moderate edema of scrotum and lower extremities; a papular eczematous eruption on extensor surfaces of knees and elbows. Examination of urine showed 1.4% sugar, a trace of albumen, and heavy traces of acetone and diacetic acids. In the sediment there were coarsely granular casts and an occasional red blood cell. The blood sugar was 348 mg. per 100 cc.

Because he appeared to be comatose insulin was given at once. Five units were injected every four hours buffered by one ounce of orange juice every hour. Clinical improvement was at once evident. Five units of insulin were then given three times a day thirty minutes before meals. This was not sufficient to get rid of the glycosuria and ketosis so that the insulin dosage was rapidly increased to twenty units three times a day. In the few days following, the acidosis disappeared and general improvement continued but, even though he was getting larger doses of insulin than ordinarily accepted as advisable, the twenty-four hour amount of urine repeatedly showed sugar and the morning blood sugar remained high. These facts are presented in the following table:

TABLE I

Showing the persistence of glycosuria and high morning blood sugar in spite of large doses of insulin.

Date	Acetone	Diacetic	Total Sugar Excre. gms.	Carbo-hydrate gms.	Protein gms.	Fat gms.	Blood Sugar Mg. per 100 c.c.	Insulin Units Daily
June 21	++++	++++	.....	.....	.....	.....	348	30
22	++	++	19.5	30	30	80	348	15
23	++	0	13.39	30	30	80	70	25
24	+	++	55.5	30	30	80	345	25
25	+	+	37.8	30	30	80	246	40
26	0	+	27.8	30	30	80	377	45
27	0	0	16.87	48	30	80	294	55
28	0	0	17.75	30	30	80	274	45
29	0	0	12.15	30	30	80	424	60
30	+	0	15.62	30	30	80	115	50
July 1	0	0	30.00	30	30	80	.....	60
2	0	0	0	30	30	80	310	60
3	0	0	7.89	35	30	80	242	60
4	0	0	35.66	35	30	80	.....	60
5	0	0	26.3	35	30	80	290	60

A study was then made of two-hourly specimens of urine in an effort to determine at what time the sugar was being excreted. This was done for three days and it was found that the patient was sugar free except between the hours of 2:00 A. M. and 12:00 noon. (Table 2.)

The procedure up to this time was to give insulin thirty minutes before meals. The problem was that of a diabetic excreting sugar for ten hours out of twenty-four in spite of massive doses of insulin (60 units daily). These 60 units were injected between the hours of 8:00 A. M. and 5:00 P. M., or within a nine hour period. Hourly blood sugar estimations following the injection of insulin showed that in this case the maximum effect of insulin took place at the fourth hour and that a rise in the blood sugar occurred after this. It was at once thought that the problem might be solved by giving the insulin at longer fixed intervals so that its action would be evenly distributed over the twenty-four hour period. Seven hour intervals were established and injections of twenty units

*From the Children's Medical Service, Massachusetts General Hospital.

were made at 8:00 A. M., 3:00 P. M. and 10:00 P. M. Meals were served at the usual hours of 8:30 A. M., 12:00 noon, and 5:00 P. M. It is interesting to note that this procedure dealt effectively with the situation and that on the

charged August 26th, 1923, gaining weight and in good general condition. The diet on discharge was C 40 P 60 F 150 approximately 1,750 calories. The insulin dosage was 5 units three times a day.

TABLE 2

Showing grams of sugar excreted in two hourly specimens of urine over a period of three days. The patient is sugar free except between the hours of 2 A. M. and 12 noon.

July	8-10 A. M.	10-12	12-2 P. M.	2-4	4-6	6-8	8-10	10-12	12-2 A. M.	2-4	4-6	6-8
3-4	11.62	11.71	0	0	1.12	0	0	0	0	1.08	2.4	.....
4-5	22.5	.18	0	0	0	0	0	0	0	0	+	3.64
5-6	12.38	2.92	0	0	0	0	0	0	0	0	.675	2.15

day after its institution the patient became sugar free and the morning blood sugar returned to normal. (Table 3.)

It is obvious that the method used is one of several that could be employed to control nocturnal glycosuria. Meals served at longer intervals or a midnight dose of insulin probably would have served the same purpose.

Because of conditions at home this patient was forced to learn how to take care of himself. Before his discharge he was able to weigh out accurately his daily rations and to measure and inject his own insulin. Thirteen weeks after discharge he is in good condition and is gaining weight. He occasionally shows sugar in the morning specimen.

TABLE 3

Showing the effect of lengthening the intervals for injection of insulin. Change was made on July 9 and it is noted that the patient became sugar free at once.

Date	Acetone	Diacetic	Total Sugar Excre. gms.	Carbohydrate gms.	Protein gms.	Fat gms.	Blood Sugar Mg. per 100 c.c.	Insulin Units Daily
July 6	0	0	18.12	30	35	80	328	60
7	0	0	9.17	30	35	80	259	60
8	0	0	12.75	30	35	80	.....	60
9	0	0	0	30	35	80	.....	60
10	0	0	0	30	35	80	.....	60
11	0	0	0	30	35	80	148	60
12	0	0	0	30	35	80	146	60
13	0	0	0	30	35	90	.....	60

At this time (seventeen days after admission) he was fairly active, did not complain of weakness, the edema had practically disappeared, and casts had long since been absent from the urine. He was now on a diet of C 30 P 35 F 80 approximately 980 calories. From this time on the diet was increased gradually until he was getting C 120 P 40 F 100 approximately 1,540 calories. Even though he was getting 60 units of insulin, his tolerance was exceeded and sugar appeared in the urine. By reducing the carbohydrate allowance to 40 grams and increasing the protein and fat moderately (C 40 P 60 F 150) it was possible not only to render the patient sugar free on a higher caloric diet but also to reduce the insulin dosage to 15 units daily.

Attempts were made to lessen still further the dose of insulin and also the number of daily injections but without success. He was dis-

SUMMARY

A case of severe juvenile diabetes which was controlled by insulin is presented.

The case suggests that, under proper supervision in hospitals, more latitude can be taken in regard to the time for injection of insulin.

An 11 year old child of average intelligence, with little or no parental supervision, was trained to manage successfully the dietary and insulin treatment of diabetes.

Since 1900 the death rate from Bright's disease has increased 15 per cent; from disease of the heart, 27 per cent.

These are the diseases of adult life—the diseases of hurry and worry and overeating and nervous wear and tear.

As a matter of fact, the decrease in the death rate is due to the better care of infants.

THE RESPONSIBILITY OF THE MEDICAL PROFESSION TOWARD TUBERCULOSIS*

BY JOHN B. HAWES, 2ND, M. D.

President, Boston Tuberculosis Association

In presenting what follows I wish to make it absolutely clear that I am so doing in a spirit of constructive and not destructive criticism. I am describing in detail conditions as I see them and have known them to exist in Massachusetts during the past twenty years, simply because Massachusetts is the only state about which I have definite knowledge as far as tuberculosis is concerned. I firmly believe that a state of affairs similar to what I describe here exists in almost every other state in this country and that the problems that I as President of a strong and vigorous local tuberculosis association am meeting, likewise confront others occupying similar positions elsewhere.

In a similar way I shall describe certain conditions regarding the tuberculosis problem as I see it at the Harvard Medical School and the Massachusetts General Hospital simply because I know in detail what the conditions are at these particular institutions. I am very sure that conditions similar to these exist at other general hospitals and at other medical schools in the country.

Every citizen of Massachusetts has every reason to be immensely proud of its record during the past twenty years in lowering the mortality from tuberculosis. In 1904 it was 217 per 100,000; in 1924 it is approximately 80 per 100,000. But it is not the splendid record of the *past*, nor the *present*, which concerns me but that of the *future*.

I fully realize that in dealing as I do almost exclusively with pulmonary diseases, tuberculosis to me looms up as a far greater problem than it does to the general practitioner. Ten years ago in a letter gently chiding me for openly expressing views to the effect that the subject of tuberculosis was not adequately taught at the Harvard Medical School, an older physician and a friend of mine said, "Remember, Hawes, that every little specialty cannot be given the attention which its enthusiastic followers believe it should receive." There is little or nothing to be said in reply to anyone who looks upon tuberculosis and the problem connected with it as "a little specialty."

As I said before I am basing what I have to say on conditions as I see them in Massachusetts both now and during the past twenty years that I have been actively connected with its tuberculosis problem, not only in my private work but as Secretary of the State Tuberculosis Commission, 1907-1918, Secretary of the Associated Tuberculosis Committees of the Massachusetts Medical Society, 1904-1912, and during the past three years as President of the Boston Tuberculosis Association. I first present the following premises:

1. Tuberculosis, its prevention and control, is one of the greatest medical problems of this country.
2. The guidance and leadership of the anti-tuberculosis campaign must rest with the medical profession.
3. To continue in the future the remarkable progress that has been made in the past our medical schools must give adequate instruction on the subject of tuberculosis.
4. Medical practitioners of all kinds must be made to feel that their duty to the community demands that they *at least have an interest* in the tuberculosis campaign even if they do not take an active part in it.

The truth of my first premise may be challenged but I believe not with success. One eminent physician to whom I made this statement reminded me that tuberculosis now stands only third on our mortality list with pneumonia and heart disease occupying first and second places. The mere facts that tuberculosis is a communicable disease and that it does most of its killing during the years of man's greatest usefulness and activity are enough in themselves to make it a greater problem than either of these others. It is unnecessary for me to point out the other reasons why I consider the tuberculosis problem our greatest one. I need but refer to its appalling cost in lives, money and unhappiness and to the immense sums spent on hospitals, sanatoria, clinics, etc., by the government, states, municipalities and private organizations.

My second statement that the tuberculosis campaign must be led by the medical profession may seem quite unnecessary. At the present time at least such is not the case as far as Massachusetts is concerned. Twenty-five years ago, thanks to the far-reaching influence of the late Dr. Arthur T. Cabot, general practitioners all over our state were active in helping to suppress tuberculosis; at present this work lies in the hands of a comparatively small group of men mostly specializing in the subject or in state or county employ.

The Tuberculosis Section of the Massachusetts Medical Society was formed in 1911 and for some years at the annual meeting of the society this section was well attended by a representative group of general practitioners sincerely interested in the subject. At the present time, in my opinion, the Tuberculosis Section of the Massachusetts Medical Society does not fill the

*Read at the annual meeting of the American Clinical and Climatological Society, May 2, 1924.

place it should. I am sure that I can name 75% or more of the men who attend the meetings of this section year after year—men who for the most part are not general practitioners but who are specially engaged in tuberculosis or public health work. In other words the admirable papers presented each year at the meeting of the Tuberculosis Section *do not attract or reach the general practitioners* for whom they are intended and for whom they are of value but instead a group of interested men who do *not* need such stimulus or help.

The same condition of affairs exists in regard to the meetings of county and local medical societies. During the past 10 years the Suffolk District Medical Society which includes Boston has held about 80 meetings in all; at these 80 meetings the subject of tuberculosis has been presented only once and that on its surgical treatment. Considering the importance of the tuberculosis problem, this is a poor showing. The same thing applies to medical societies outside of Boston. At approximately 450 medical meetings held by Massachusetts county medical societies during the past five years the subject of tuberculosis has been considered 28 times. This is a striking example of the lack of interest that tuberculosis and its prevention has for the average medical practitioner.

The reasons for this lack of interest are twofold and are hinted at in premises 3 and 4, that adequate instruction in tuberculosis should be given in our medical schools and that the medical profession at large must be made to feel its responsibilities in helping to solve this problem.

First, there is a general impression that the tuberculosis situation in Massachusetts is well under control and the work adequately and efficiently handled by the State Department of Health, the Massachusetts Tuberculosis League and other excellent organizations supported by public and private funds. So the general practitioner says, "Why worry?" and certainly does not as far as tuberculosis is concerned. The other reason for this state of affairs is that tuberculosis receives scant attention in our medical schools. I will make an exception of Tufts Medical School where for years Dr. Edward O. Otis has given a good course on this subject including not only clinical instruction but a series of lectures on its social and economic aspects. At the Harvard Medical School there are three or four lectures on tuberculosis given to fourth year students who are supposed to spend one week from nine to five acting as clinical clerks in the wards of the Boston Sanatorium—an institution for advanced tuberculosis. In a recent letter to me on this subject the physician in charge of these students was decidedly pessimistic as to how much was accomplished. Certainly, the men get little training in the diagnosis of early cases and practically none on the broader aspects of the question. How then can we expect our medical students to graduate with any special interest or enthusiasm toward tuberculosis or with any realization as to their duties and responsibilities toward it?

The wards of our leading general hospitals are closed or rather supposed to be closed as far as tuberculosis is concerned. The Massachusetts General Hospital does not admit, or rather, says it does not admit patients with tuberculosis to its wards. For many years I have been a member of the staff of that institution and invariably have had to camouflage the diagnosis of any patient whom I wished admitted for diagnosis, observation or disposal under such titles as a "lung case for study," etc. This held true whether the patient went to an open ward or to a high-priced private room. At the same time patients with typhoid fever and other conditions far more readily communicable than tuberculosis are admitted without question. Surely a ridiculous and archaic state of affairs but one that makes a marked impression on the mind of the medical student or interne. He unconsciously gets a deep-rooted conviction that tuberculosis does not enter into his curriculum; that it will not enter into his future work; and that it is a matter with which he has little or no concern. On the other hand upon finishing his interneship he is an expert with the use of insulin; he can do a good job with blood cultures and renal function tests and probably localize a brain tumor. With tuberculosis which is bound to occupy a large place in his practice he is in profound ignorance.

It is interesting to compare what I have just said with remarks of Sir James Fowler in his recently published book, "Problems in Tuberculosis." In explaining what he calls the terrible prevalence of errors in diagnosis in tuberculosis work in England, he says:

"Absence from the wards of the General Hospitals of cases of pulmonary tuberculosis. Consequently, students have never been adequately instructed in the physical diagnosis of this disease.

"There is now a Tuberculosis Department at several of the General Hospitals of London and at one at least its value is appreciated by the students. I was very pleased to be told by a House Physician that it was considered to be a very important part of the Hospital, and he added, 'That's where we learn our chests.'

"This really makes one hopeful for the future. When a Tuberculosis Department under the charge of a competent physician is to be found at every General Hospital to which a Medical School is attached, but not in London only, and the students make use of it, there will be fewer errors in diagnosis and a great many more doctors who can tell you where they 'learnt their chests.' "

Please bear in mind that I am not asking younger physicians or indeed anyone to special-

ize in tuberculosis work. Again to quote from Fowler: "Before any member of the medical profession decides to enter the Tuberculosis Service I recommend him to take a long walk and think it over." And I should advise a *very* long walk. But I do feel most strongly that the time must come and that soon when the pressure of public opinion will demand a broader knowledge, a more intimate acquaintance and active interest in tuberculosis on the part of the medical profession as a whole than it has now. Please also bear in mind that I am not criticizing the medical profession nor the general practitioner. I am simply stating facts and conditions as I see them—conditions for which I myself and many of us who are deeply interested in the subject are partly responsible.

What is the answer? Granted the truth of what I have said and I doubt if anyone will contradict me, what can we do to change this state of affairs? To this I would reply:

1. Exert influence to see that tuberculosis is given adequate attention in our medical schools. I believe that publicity is the best remedy. When the general public already well aroused to the bigness of the tuberculosis problem finds out how little is taught in regard to it at our medical schools it will demand a change.

2. Exert similar influence on governing boards of General Hospitals to have special observation and diagnostic wards for tuberculosis. This is becoming the case in Europe and elsewhere I believe in this country. My own city stands in splendid isolation in this regard. In these wards, as Fowler says, "internes and medical students will learn their chests."

3. See that on the yearly program of state, county and local medical societies and associations of all kinds the subject of tuberculosis holds a place. If possible, see that someone delivers such talks or papers who can speak well and with authority.

4. Try to enroll the younger doctors, especially those just graduating from hospitals, in local tuberculosis work and make them do something and help in some way in the local tuberculosis problem even if it be very little.

BOOK REVIEWS

Non-Surgical Drainage of the Gall Tract. LYON.

Dr. Lyon's treatise on non-surgical drainage of the gall tract is commended to the careful consideration of internists and surgeons alike. As the author says, greater accuracy is needed in the diagnosis of incipient and a typical gall tract disease where the history, physical examination, and x-ray findings are inconclusive. There is also needed an alternative and adequate medical treatment in the early cases, and some method of assisting the surgeon in the preoperative and postoperative treatment of advanced cases. Dr. Lyon has made Meltzer's theories of duodenal relaxation with $MgSo_4$ and contrary innervation of the gall bladder musculature and the sphincter of Oddi the basis of his contentions. The duodenal content, including the bile, cellular elements, bacteria, etc., are minutely studied, and the author believes he obtains three kinds of bile, the first coming from the common duct, the second from the gall bladder, and the third from the liver. There is much in favor of this belief, though it has been disputed by Einhorn, Bassler, Crohn, Cutler and Newton, and others. Further studies with biliary drainage working simultaneously with abdominal exploration of the gall tract under local anaesthesia might help to settle the question. The procedure is complicated, detailed, and time consuming, but results are the criterion, and one hundred cases of all types of gall tract disease so treated are presented as satisfactory evidence. Whether or not one agrees as to the wide range of usefulness of these diagnostic and therapeutic methods, there is undoubtedly much of real value, especially in the doubtful and difficult cases to diagnose and in the cases requiring further study after unsuccessful operation. Such additional help is welcome, and it is hoped that at least a measure of Dr. Lyon's enthusiasm and energy may be shown by others.

Eat Your Way to Health. By ROBERT HUGH ROSE, M. D. New Edition, Revised and Enlarged. Funk & Wagnalls Company, New York and London. 1924. Pages 230.

Many patients many physicians, is an old adage. Similarly, one may say, many people many books. On this basis, many people will doubtless find help and comfort in this new edition of a book on diet which first appeared in 1916.

Otherwise, it is difficult to see wherein this book excels all others of the numerous books on diet which have in recent years been presented in almost embarrasing profusion to an encouragingly absorbent lay public.

In essence, the book would appear to be an amplification (to the extent of 230 pp.) of the proposition that by determined action one may at will gain weight, lose weight, or remain at a fixed weight.

The usual lists of foods and menus are given, with calory and vitamin contents indicated. Source books receive due credit in the preface.

Though the reviewer finds little material which can be classified as original, there is also found little to regret. Consequently, it is permitted to wish the author success in the dissemination of his dietetic motto: "Right eating, normal weight, normal blood pressure, and the prolongation of youth."

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY
RICHARD C. CABOT, M.D., AND HUGH CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

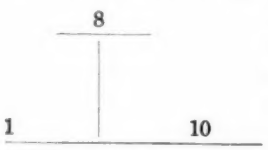
CASE 10341

A trained nurse of sixty-five entered March 4 complaining of a mass in the epigastrium and left side of five months' duration.

P. H. She had measles, mumps, chickenpox and "lung fever" in childhood. She had a cataract in the left eye. She rarely had headaches. Five years before admission she had typhoid fever followed by deafness in the right ear. For five years her bowels had been very constipated. She passed the menopause at fifty-three.

P. I. The October before admission she noticed a mass the size of an orange on the left side below the ribs, not movable or painful. Six weeks later it had increased much in size. It continued to extend across the front of the abdomen and downward, and now reached to the right side. Since a month after the onset she had had an occasional sharp shooting pain starting in the left side just above the hip and radiating in a broad band across the abdomen, taking her unawares while walking. Although she had been much constipated for five years the condition had been much aggravated in the past month and the stools were passed in small fragments, often only half an inch in diameter. For the past few weeks she had been much troubled with borborygmus and some belching of gas. For the past few days she had had a bad taste in the mouth.

P. E. Well nourished. Rather pale. *Lungs.* No abnormalities recorded. Apex impulse of the *heart* not found. Percussion measurements as shown in the diagram. A systolic murmur over the aortic area. *B. P.* 170/100. *Abdomen* distended, firm, hypertympanitic except as shown in Figure I. Tenderness over mass. Fullness below the left costal border and the left side. Slight shifting dullness and a fluid wave. Veins over abdomen slightly prominent.



Before operation *T.* normal except for one rise to 101.7°, *P.* 85-95, *R.* normal; *urine*, amount not recorded, cloudy at one of two examinations, other findings normal; *blood*, hgb. 75%, leucocytes 10,000, polynuclears 60%-75%, reds normal. *Medical consultation.* "I am unable to make a diagnosis on the present data. I am not sure that tumor is spleen. It does not appear to be leukemia." *X-ray.* Plates of the genito-urinary tract unsatisfactory for examination for stone or kidney lesion. In the pelvic region there was a group of dense irregular shadows over the lower portion of the sacrum to the left, suggesting calcification in a pathological structure, possibly uterine or ovarian tumor.

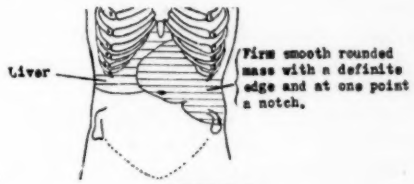


FIGURE I.

"Dense material in the bowel however should be excluded. No evidence of pathological involvement of the colon." . . . Left diaphragm high and indistinct in outline and fixed in position. Apex of the heart pushed up. Costophrenic angle hazy. Lung fields above not abnormal in appearance. Some calcified glands at both lung roots.

March 8 operation was done. The patient made a good ether recovery. For the first five days the temperature ranged from 98° to 100.6°, the pulse from 89 to 120, the respiration from 20 to 31. Afterwards the temperature and respiration were not remarkable. The pulse continued to range from 78 to 107, after March 21 from 97 to 119. March 22 she had X-ray treatment. There was no general reaction. The following day however there was a swelling of the left leg from the knee downward. March 27 this was better. X-ray treatments were given March 25, 26 and 29. The abdomen appeared somewhat more distended. The patient grew paler and weaker and made no apparent improvement. March 31 the left leg was again swollen. April 2 she had another X-ray treatment. April 3 she had rather sudden onset of dyspnea, cyanosis and abdominal distension. The pulse rose to 143, the respirations to 46. That day she died.

DISCUSSION

BY DR. RICHARD C. CABOT

NOTES ON HISTORY

We start off with a prejudice towards malignant disease.

Let us think a little about what gives us masses in the left side below the ribs. There are rather few of them on the left. The right side is the place where we get all sorts of things. What are the possibilities? Spleen and kidneys are almost the only things.

A PHYSICIAN: Adrenal?

A PHYSICIAN: Colon?

DR. CABOT: The adrenal merges into the kidney, so we cannot tell. Palpable tumors of the splenic colon are rare. I do not remember in that region any considerable number of tumors due to the colon. But cancer of the splenic flexure might appear there. I have never known a stomach tumor to appear there. So that practically it comes down to spleen and kidney.

A PHYSICIAN: How about gummata?

DR. CABOT: Those exist almost wholly in the books now. In life they are no longer often seen. I suppose that means that salvarsan and mercury are given enough to suppress not syphilis, but the manifestations of syphilis. Practically in my diagnoses I do not take gummata into consideration. So I should say this is not a gumma.

If this account of the growth and position of the mass is accurate that is the spleen. Kidney does not do that. Stomach does not do that.

My guess is that the pain was due to the constipation. A big spleen, if there is a big spleen, often presses on the colon in such a way as to cause a partial obstruction with very great constipation. That is natural.

The essentials of this history are what the patient herself felt in the way of a tumor. She has had some pain, not very much, gas, and a bad taste in the mouth.

NOTES ON THE PHYSICAL EXAMINATION

Well-nourished goes perfectly well with a big spleen, would not go so well with the kidney lesion.

The cardiac measurements are normal; the supracardiac I don't pay much attention to. Literally it is increased. The heart is hypertrophied and dilated, presumably, with normal valves.

In the diagram we see an attempt to draw a spleen and a liver, the spleen characterized by its notch. But although it is drawn like a spleen it is not described quite like a spleen. The thing that we characterize a spleen by is a sharp edge Is that described anywhere?

MISS PAINTER: "A firm smooth rounded mass with a definite edge."

DR. CABOT: A kidney does not have a definite edge. Nothing connected with the kidney has a definite edge, whereas the spleen does. So that we put great stress on that. If we are right about it it decides the diagnosis.

I am wondering what they are going to operate for. At sixty-five I do not know what can be done to a spleen. There is nothing to indicate disease of the kidney so far as the urine shows it. But the report of the medical consultant is very important, because a medical consultant is presumably a man who has felt a good many spleens and ought to know his business. There is absolutely no possibility of its being leukemia with that blood count, if the blood count is right. Of course the boy may have lied, or got the blood mixed up with another case, or something like that. But with that blood it cannot be leukemia, although a big spleen is of course what we expect with leukemia.

I do not know anything about this X-ray plate. We see a lot of worm-eaten looking shadows which they have been describing as calcification, not tumor, but as I never saw anything like it I have nothing to say. It is suggested that that might mean feces. I have never seen any shadows like that with feces. I give it up.

The diaphragm naturally would be fixed, because this big lesion underneath it prevents it from going down.

We have to decide what the operation was for.

A PHYSICIAN: Subphrenic abscess.

A PHYSICIAN: Exploratory?

DR. CABOT: That is not a sufficient reason. We explore people if we think there is something removable. They certainly would not have done this operation for a spleen. They showed by operating that they did not think it was a spleen.

A PHYSICIAN: How often do you find carcinoma of the splenic flexure?

DR. CABOT: That is not rare. A little farther down, in the rectum and sigmoid, it is very common. But we have no symptoms of that. The degree of constipation is not enough. "Exploratory" is not saying enough according to my ideas. We must explore for a reasonable hypothesis or suspicion, one or more.

A PHYSICIAN: Would they go in for an ovarian cystadenoma?

DR. CABOT: Yes, although I never saw one in the left upper quadrant.

MISS PAINTER: It is definitely recorded that pelvic examination was not done.

DR. CABOT: I cannot imagine why not.

A PHYSICIAN: Splenic tumors do not move on respiration.

DR. CABOT: We do not know that this did not move.

A PHYSICIAN: In the history it said "not movable or painful," and there is no record of moving here on respiration.

DR. CABOT: That is the patient's statement, and that is not worth anything. But that is a perfectly good point. It should move down with respiration if it is a spleen.

All I can say is that I think the people who did this operation thought that it was something in the kidney. They seem to me to have very insufficiently examined the patient. I do not see how, on the data they had here, they had any right to operate. I certainly should not have recommended operation. We do not know about the pelvis. We have no sufficient examination of the urinary tract. If this is a kidney tumor it might perfectly well have shown on a pyelograph evidence of that, or insufficiency of one

kidney's urine when the ureters were catheterized. Why all that was omitted I do not know.

A PHYSICIAN: What kind of kidney lesion could we have with practically normal findings?

DR. CABOT: I should rather ask, "Is there any kidney lesion we could not have?" We certainly can have malignant disease. If it is up at the top of the kidney we get nothing at all in the urine. Or we can have a multilocular cystic kidney, which would give nothing in the urine. We could have tuberculosis of the kidney and nothing in the urine. We could have a pyonephrosis or a hydronephrosis with nothing in the urine.

What kind of kidney lesion could this be? Hypernephroma is the commonest of all kidney tumors. It is the neoplasm supposed to start in the adrenal gland; next I should say would be congenital cystic kidney, which would give a tumor of this size. I have a patient whom I have watched for years with it. He is perfectly comfortable.

A PHYSICIAN: Are you ruling out a retroperitoneal tumor in this case?

DR. CABOT: No, I do not see how we can. It is always a good thing to think of.

A PHYSICIAN: Cyst in the tail of the pancreas?

DR. CABOT: I never heard of it. What about that, Dr. Richardson?

DR. RICHARDSON: No. Cysts are at the other end. We do get tumors there.

DR. CABOT: But this is the size of a bushel basket.

From the fact that they gave X-ray treatment we know that they found malignant disease.

Presumably she had "milk leg."

DIFFERENTIAL DIAGNOSIS

As time has gone on we have thought less and less of the spleen and more of the kidney. And of course at her age, with a lump, malignant disease is the first thing to think of. The malignant disease most common—and that is what we have to go on—is hypernephroma. So my guess is hypernephroma. But I do not see why they did not do some of the tests which would enable us to say definitely what it was.

A PHYSICIAN: How about a lymphosarcoma?

DR. CABOT: Of the retroperitoneal glands. I cannot exclude it. We may say, however, that it is rare to have it confined to those glands and appear nowhere else in the abdomen or superficial glands.

A PHYSICIAN: Is there anything in the white count that would tell us?

DR. CABOT: No, there is nothing characteristic in the blood of lymphosarcoma.

A PHYSICIAN: Would it not have metastasized in all this time?

DR. CABOT: We do not know that it has not. We cannot say that it would have given obvious metastases. Many of them do not.

A PHYSICIAN: What about blood in the urine?

DR. CABOT: We see it, but there are many cases without it.

A PHYSICIAN: Do you attach any importance to slight shifting dullness and fluid wave? Would it mean abscess?

DR. CABOT: That means ascites,—free fluid.

A PHYSICIAN: Could she have malignancy in the pelvis with hydronephrosis above it?

DR. CABOT: That is possible. But for statistical reasons we are more likely to be right if we make one diagnosis rather than two. I do not see that we can rule out pelvic tumor, and there are all these queer shadows in the pelvic X-ray.

A PHYSICIAN: Would you advise cystoscopy?

DR. CABOT: I think so. I do not know why not.

A PHYSICIAN: She must have had a tumor for some time.

DR. CABOT: Yes; from October to March she felt it. Does that make you think that it was not malignant? Hypernephroma can grow very slowly.

A PHYSICIAN: Wouldn't X-ray of the lung show metastasis in the lung?

DR. CABOT: They took an X-ray, and I do not think there is any evidence of metastasis.

A PHYSICIAN: What do you think actually caused the death?

DR. CABOT: This sudden onset of dyspnea and cyanosis in a patient who has presumably got a thrombosed leg makes us think of pulmonary thrombus or embolus.

A PHYSICIAN: We have pictures of the chest and of the pelvis; if it were hypernephroma shouldn't we be apt to see metastases of the bones of the chest or of the pelvis?

DR. CABOT: That is a good point. We very often do.

A PHYSICIAN: I think it is lymphosarcoma.

DR. CABOT: My belief is that it is something that none of us has thought of.

A PHYSICIAN: You have not ruled out the pelvis.

DR. CABOT: No. Ovarian tumor with something else is possible; I don't think it can all be ovarian tumor.

A PHYSICIAN: Would the age of the patient suggest anything?

DR. CABOT: I think not.

A PHYSICIAN: Epithelioma of the spleen?

DR. CABOT: That is rare. They certainly would not have operated if they had thought it was the spleen.

A PHYSICIAN: I think it is carcinoma of the spleen.

DR. CABOT: That is one of the rarest of lesions, but you have courage. I do not think I ever saw primary carcinoma of the spleen.

DR. RICHARDSON: We don't get it.

DR. CABOT: Secondary carcinoma is all right.

A PHYSICIAN: Neoplasm of the colon.

DR. CABOT: This is very big. I never saw or heard of such a big one. They grow very slowly. I will vote against that and against cancer of the spleen, even secondary.

A PHYSICIAN: Banti's disease. She has the blood picture and the liver.

DR. CABOT: Before death there should be some evidence in the liver. We have some ascites. The spleen in Banti's disease is usually an unmistakable spleen, one of those perfectly clear spleens. If they could not describe a Banti's disease spleen better than this it would be strange. So I do not believe it.

A PHYSICIAN: Sarcoma of the spleen or kidney.

DR. CABOT: Sarcoma of the kidney is the same as hypernephroma; sarcoma of the spleen I never heard of.

A PHYSICIAN: Did this tumor have a definite edge?

DR. CABOT: One man said it did, but the medical consultant said he was not sure it was the spleen.

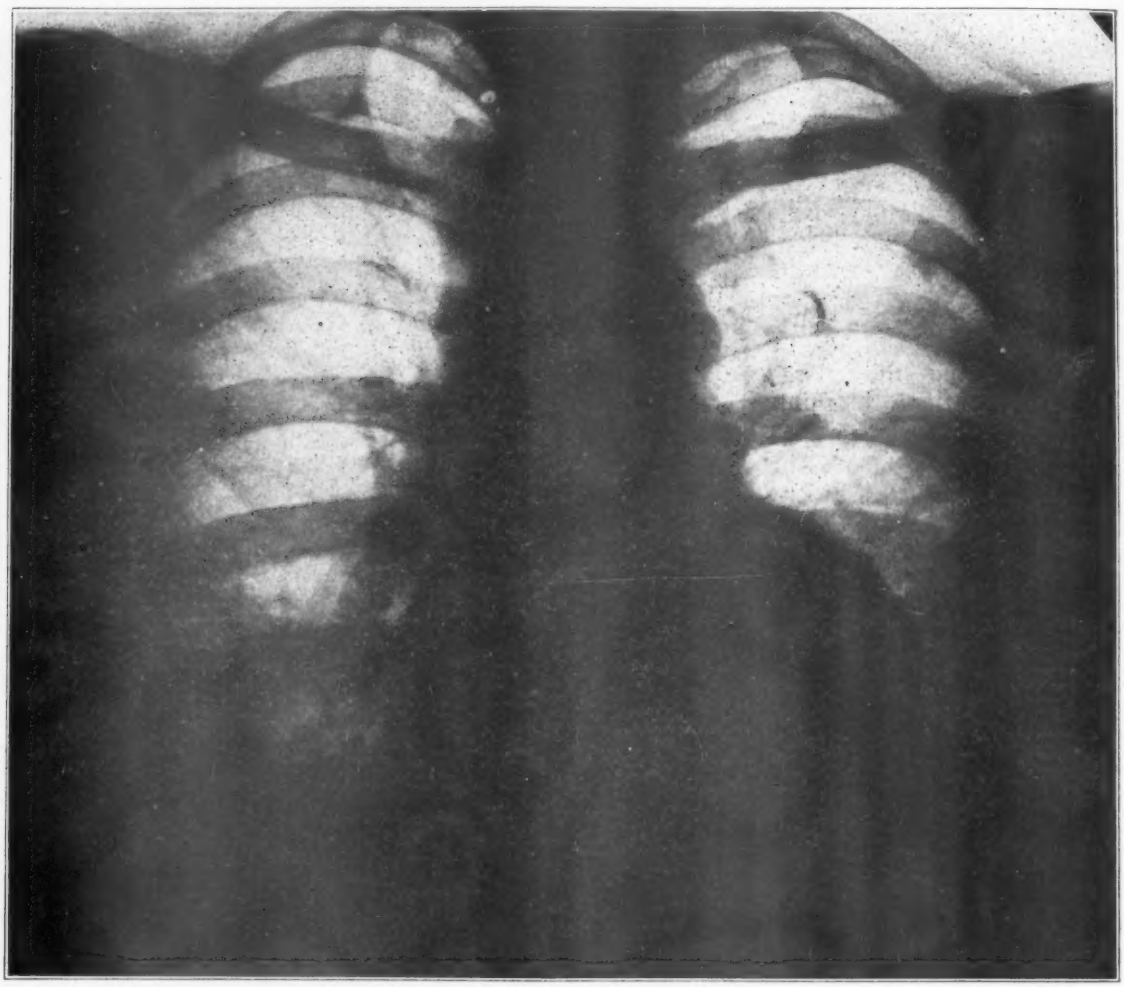
I am going to stick to hypernephroma—though I do not believe it is that—simply because I cannot think of anything else that is more likely.

DR. CABOT'S PRE-OPERATIVE DIAGNOSIS

Hypernephroma.

PRE-OPERATIVE DIAGNOSIS

Retroperitoneal tumor.



Left diaphragm high and indistinct in outline and fixed in position. Apex of the heart pushed up. Costophrenic angle hazy. Lung fields above not abnormal in appearance. Some calcified glands at both lung roots.

OPERATION

Gas-ether. Right rectus muscle splitting incision. Under ether the mass felt like a large cystic tumor with its most prominent part in the epigastrium to the left of the median line. The mass was found to be retroperitoneal, extending well down to the pelvic brim. The spleen and liver could be felt crowded up to the diaphragm above. This tumor originated, in my opinion, in the kidney. Incision was made in the peritoneum above. Colon and a thin walled sac opened, the tumor being filled with colloid material resembling turbid wine jelly. A specimen

of the wall was removed and the incision closed.

Diagnosis. Retroperitoneal colloid tumor, probably of the kidney. May be myxosarcoma.

PATHOLOGICAL REPORT

Fragments of soft gelatinous tissue showing on microscopic examination large undifferentiated round cells with eosin-staining cytoplasm and large hyperchromatic nuclei, often in mitotis. In favorable places the cells show an alveolar arrangement. In other parts they are more diffusely scattered, and their fibrils are widely separated by a pale blue-staining fluid. In appearance and arrangement the tumor cells resemble those of cartilaginous type which have undergone myxomatous degeneration.

Myxochondrosarcoma.

H. F. HARTWELL.

FURTHER DISCUSSION

Their pre-operative diagnosis means that it was some kind of tumor that was not a spleen.

Even with the abdomen open they could not be sure what it was, so I do not see how we could be sure.

In other words, they backed out and hoped to get through without killing the patient.

Myxochondrosarcoma ought to mean bone somewhere, I suppose cartilage and mucin. But nobody yet has any idea where it came from, and now we shall find out.

DR. RICHARDSON: I wish I could tell where tumors come from.

LATER NOTE ON THE X-RAY, BY DR. G. W. HOLMES

X-ray examination ruled out any definite process in the urinary tract or in the chest, and shows a high fixed diaphragm on the left side. Such a condition could be produced by a tumor or an inflammatory process directly beneath the diaphragm on this side.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Retroperitoneal myxochondrosarcoma.
Exploratory laparotomy with removal of specimen.
Pulmonary embolism?

DR. RICHARD C. CABOT'S DIAGNOSIS

Hypernephroma.
Pulmonary embolism.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesion*

Myxochondrosarcoma of retroperitoneal tissue, with metastases in mesenteric and epiploic appendages.

2. *Secondary or terminal lesions*

Hydrothorax, left.
Compression atelectasis, lower lobe of the left lung.
Infarcts of the spleen.

3. *Historical landmarks*

Operation wound.
Cholelithiasis.
Slight arteriosclerosis.

DR. RICHARDSON: We could feel in the region of the left upper quardrant a large mass. The cutaneous vessels in the periphery of the mass were very prominent.

There was a good amount of subcutaneous fat and she was fairly well nourished generally, although a great mass of new growth tissue was found.

The peritoneal cavity contained 1,500 c.c. of thick pale syrupy fluid. The liver was three cm. above the costal border. The diaphragm on the right was at the third rib, on the left at the fourth rib,—a little up on the left.

In the left pleural cavity was 500 c.c. of thin pale fluid. The tissue of the right lung and of the upper lobe of the left lung was spongy, pale red, and yielded a small amount of thin frothy fluid. There was a little emphysema in the peripheral portions of the right lung and in the upper portions of the left. The lower lobe of the left lung was collapsed, the tissue red, leathery, dry.

There was only a slight amount of arteriosclerosis.

In the gall-bladder there was one stone, one cm. in diameter.

The spleen weighed 225 grams, slightly enlarged, and there were a few infarcts in it.

DR. CABOT: Were those infarcts old or new?

DR. RICHARDSON: They were rather recent.

The left adrenal was embedded in the retroperitoneal new growth tissue.

The lesser curvature of the stomach was below the gall-bladder. (See Figure II.) The intestines were all pushed down and over to the

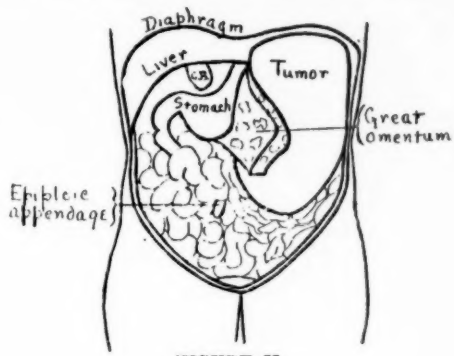


FIGURE II.

right. The great omentum was thickened and showed new growth tissue scattered through it. That was the general picture as we looked down upon it. We found infiltrating new growth tissue in the mesenteries and the colon where the

epiploic appendages hang off. These were of great size. The mesenteries were greatly thickened. The new growth tissue was composed of a gelatinous tissue infiltrated with syrupy fluid like that found in the peritoneal cavity. The peritoneum was somewhat granular over the various organs. Cutting through these thickened mesenteries we could see here and there small masses of gland-like tissue which seemed to be normal but embedded in this myxochondrosarcomatous tissue in the retroperitoneal region.

DR. CABOT: I think I came out right. I said it would be something we did not any of us think of. Several men said retroperitoneal tumor. That was perfectly correct, but Dr. Richardson says he does not know from what it started. And it was not kidney or spleen or pelvis. The shadows the X-ray showed were apparently a great deal of nothing at all. Malignant disease is about all we have to say.

A PHYSICIAN: Does post-mortem show what the shadows in the pelvis were?

DR. RICHARDSON: It is hard to say. The tissue of new growth varied a little, from places where it was bluish, homogeneous and firmer to others where it was more gelatinous and softer.

DR. CABOT: There were no solid portions in it that would give such shadows?

DR. RICHARDSON: There was nothing in the nature of bone or calcareous material except that some of the large cells were of cartilaginous nature.*

*(Note on the X-ray, by Dr. John D. Camp.) The dense irregular shadows previously described in the pelvis seem to be confined to the region of the sigmoid and rectum. Many of the smaller dense shadows are low, directly over the region of the rectum. Their location is lower than the usual position of calcified glands. Inasmuch as the necropsy revealed no tissue in the pelvis capable of casting such shadows they must have been produced by bowel contents.

CASE 10342

A married woman of thirty-six entered May 22 for study.

F. H. Good.

Habits. Good. She practiced much on the piano and thought that constant pedalling might have something to do with her leg condition.

P. H. She had had measles, mumps, pertussis and tonsillitis. She formerly had fairly frequent sore throats. Her general health had always been good. She had occasional occipital headaches, relieved by glasses. She had an occasional cold.

P. I. For the past three years she had had intermittent attacks of swelling of the right leg below the knee. During the remissions the swelling did not subside completely. It had sometimes been associated with pain, either sharp or dull, localized in the calf and the ankle. For the past ten weeks she had had an acute attack of swelling not accompanied by pain. None of the attacks had incapacitated her. Her physician had told her that her heart rate was too rapid. Her only complaint, however, was of the leg.

The patient was coöperative and intelligent and gave the impression of giving a reliable history.

P. E. Nutrition fair. Throat slightly reddened. Cervical glands slightly enlarged. *Heart* negative except for rapid rate. *B. P.* 130/80. *Lungs.* A few transient crackles at the right apex in front. *Abdomen* normal. *Extremities.* Club feet, both sides. Talipes equinus. Some webbed toes. Good pulsations in both dorsalis pedis arteries. The right leg was slightly warmer than the left. In the region of the gastrocnemius muscle, right leg, was a diffuse smooth swelling, not tender or red, not attached to skin or bone, but inseparable from the muscles and soft tissues. (See Plates I and II.) *Pelvic examination.* Cervix retroflexed, mucopurulent discharge. *Pupils* and *reflexes* normal.

PLATE I.
(Dr. David Steele.)

PLATE II.
(Dr. David Steele.)
PLATES I and II. Tumor of right leg.

T. 98.4°-102°. *P.* 85-120. *R.* 20-28. Amount of *urine* not recorded, opaque and dark at the first of four examinations, sp. gr. 1.012-1.020, no albumin or sugar. *Blood.* Hgb. 85%, leu-

cocytes 12,400-28,000, polynuclears 85%-84%, reds normal. *Wassermann* negative. *Non-protein nitrogen* 28.7 mgm. *First surgical consultant.* "I think it is justifiable to amputate the leg for relief of pain and deformity in spite of the evidence of disease in lungs and liver (?)." *Second surgical consultant.* ". . . If X-ray shows evidence of metastases in lung I advise X-ray treatment; if nothing in lung, exploratory incision and amputation." *X-ray.* Right lower leg showed a fusiform thickening in the region of the gastrocnemius muscle. The shadows were of even density throughout, apparently confined to the muscle and deep fascia. No involvement of the bone. . . . Examination of the chest (see Plate III) showed five large round sharply defined dense masses in the right lung and two similar ones in the left. These shadows were of the density of soft tissue. There was no evidence of inflammatory reaction around them and no suggestion of cavity formation. . . . Outline of the diaphragm sharply defined and its respiratory movements normal. Nothing unusual in the shape of the heart shadow or the appearance of the bones of the thorax. . . . Left upper cuspid and both bicuspids had incompletely filled root canals and areas of absorption at the root tips, probably representing abscess formation. The right upper chest and two bicuspids showed similar but less marked changes. . . . Sinuses normal in outline and density. . . . Outline of the right kidney faintly seen. Left not made out. Nothing abnormal found in this region. Spine, pelvis, skull and long bones negative. *Third surgical consultant.* "Owing to unmistakable metastases in lungs would advise X-ray treatment of leg until the patient's desire to have amputation of

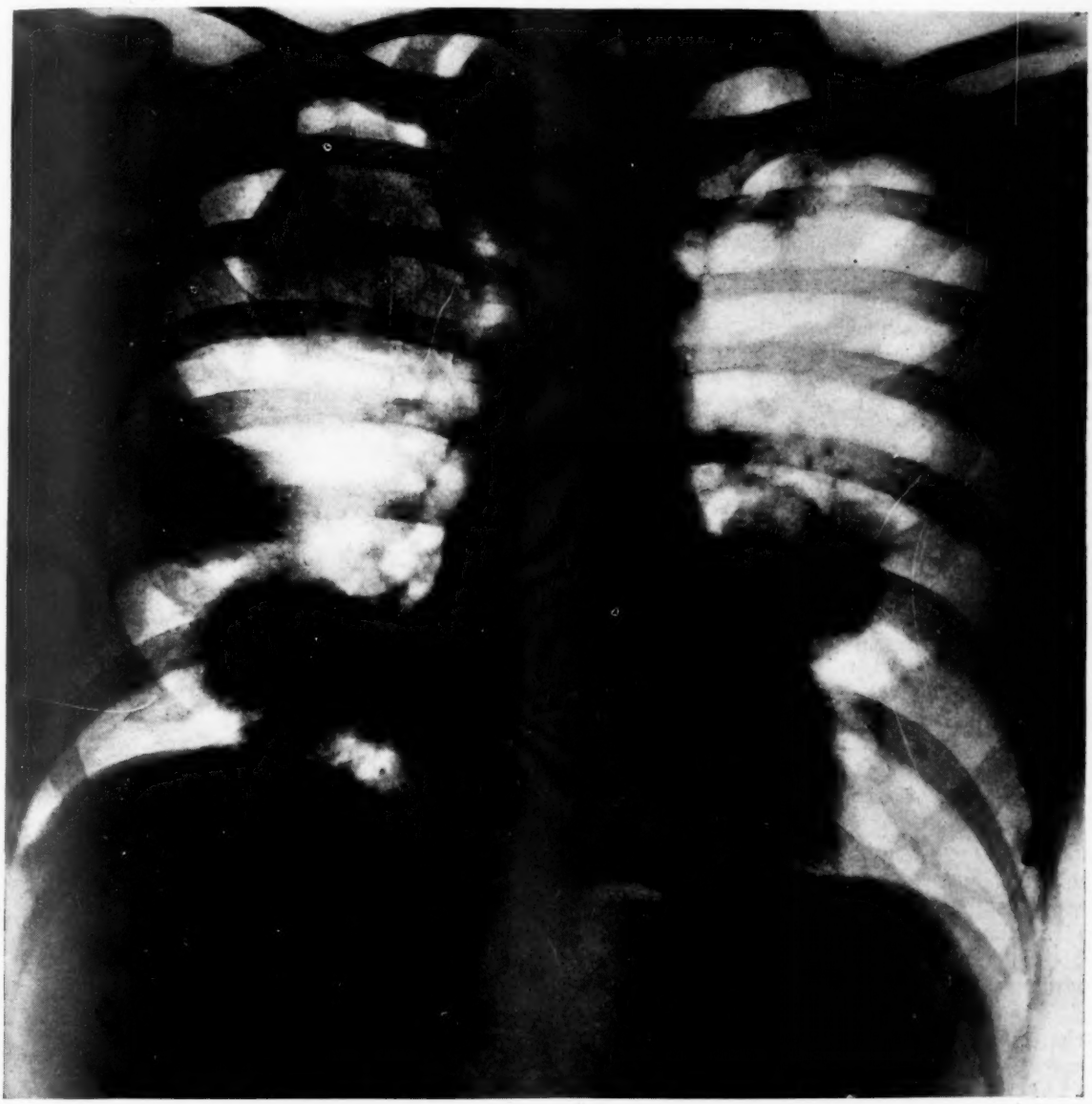


PLATE III.

Shows five large round sharply defined dense masses in the right lung and two similar ones in the left. These shadows are of the density of soft tissue. There is no evidence of inflammatory reaction around them and no suggestion of cavity formation.

the leg for pain would make that proper." *X-ray consultant.* "This case should respond to X-ray treatment. This treatment will require at least two weeks, during which time the patient should remain in the hospital."

The patient was given X-ray treatment, a full skin erythema dose, on the lateral and the medial side of the leg, of short wave 200 kilovolt therapy divided into short treatments. The treatment on the lateral side of the leg was given first and began with a fifteen minute exposure, then similar small exposures until four doses were administered. Treatment on the medial side was given in two exposures of forty-five minutes each. After the first treatment on the lateral side the patient said that the pain completely disappeared. A half erythema dose was given over a field 20 by 20 cm. on the anterior and posterior chest. She showed very marked constitutional reaction from the treatment of the chest. The pain in the leg did not return up to the time of her discharge, June 10. The leg diminished slightly in size. X-ray of the chest the day of discharge showed no change in the lungs.

Discussion

BY DR. WILLIAM H. SMITH

This patient, admitted to the medical wards, really had a surgical condition. A probable diagnosis could be made at a glance—of tumor, possibly sarcoma, from the fusiform character of the swelling, its unusual position in relation to the muscles of the leg, the absence of any inflammatory evidence. It was necessary first to determine its relation to the tibia, easily excluded by X-ray examination. The next and very important thing to determine was the presence or absence of any distant metastases.

My attention has been attracted during the last few years to the metastases in the skin, small, frequently overlooked, and to the absence of physical signs where symmetrical metastases to the lung have occurred. Recently excision of two small nodules in the skin made possible the diagnoses of (1) hypernephroma of the kidney, and (2) hemangio-endothelioma. The second patient manifested symptoms chiefly attributed to neurosis, yet the autopsy a few weeks later showed extensive metastases of hemangio-endothelioma, probably primary in the liver. The case will be reported later in full.

I recall a patient with a tumor of the liver, with normal respiration, no cough, in whose lungs I could find no evidence of metastasis, yet the X-ray revealed multiple symmetrical tumors.

Before deciding the best method of treatment in this case, although no definite suggestion of lung metastasis was found on physical examination, an X-ray was taken which showed unquestionable lung involvement.

It is now a rule in my service to exclude distant metastases, in the absence of signs, by X-ray. Within a few months a high protein content of cerebrospinal fluid led to X-ray of the skull, with startling X-ray findings. No primary tumor could be found. The widespread metastases in all the long and flat bones suggested myeloma, although no albumose was present in the urine. No hypernephroma was discovered.

The importance of this case discussed above shows how treatment was modified by X-ray evidence of lung metastasis.

Diagnosis

Fibrosarcoma of right leg with metastasis to lung.

Later Note

Beginning June 24 the treatment of the chest was repeated, making a full erythema dose for the chest during the month of June. She suffered no ill effect from the treatment. July 22 the right calf measured 41½ cm. and showed some change in contour. The patient stated that the swelling had extended somewhat lower in the leg. She had had some respiratory trouble after her last visit. This had subsided. Her general appearance was not so favorable as it had been. A chest plate showed very marked increase in size of the metastases in the right chest. The two nodules at the base had coalesced into one large dense area. The nodule in the left chest remained the same. July 29 the appearance of the chest was practically the same. She was feeling slightly better. Up to this time she had not suffered any pain in the leg except for a few hours the night of June 29. Deep therapy was given to the front of the chest.

CASE 10343

An Irish currier of seventy was sent June 12 from the Out-Patient Department. The complaint was retention with incontinence.

F. H. He knew nothing of the causes of death in his family.

P. H. Negative except for "rheumatic fever" a year before admission and some loss of weight.

P. I. Two years before admission he had retention, relieved upon one catheterization. Two months before admission after a drinking bout he had retention and was catheterized by a physician. After this he had dribbling.

P. E. Well nourished. Teeth very poor. Very marked pyorrhea. *Heart, lungs, abdomen, extremities, genitals, pupils* and *reflexes* normal. *Rectal examination.* Prostate small, tender, firm.

Before the first operation *chart* not remarkable, *urine* and *blood* not recorded.

The day of admission cystoscopy was done.

June 13 operation was done. Two days later the patient was quite comfortable and the general condition good. He complained of some pain at the meatus. There was good drainage. June 18 he seemed somewhat stuporous and slept a great deal. The non-protein nitrogen for four successive days beginning June 13 was 38.7, 37.5, 40.5 and 33.5. June 14 the renal function was 45%, June 20 it was 50%, the non-protein nitrogen 44.7 mgm.

June 19 a second cystoscopy gave practically the same findings as the first.

June 21 a second operation was done. Three days later the patient was comfortable and in fair general condition. The wound was draining well. The fluid intake was poor. It was necessary to give many subpectorals. June 28 a phlebitis of the left leg started. This reacted to treatment. June 30 the patient had delusions all night and got out of bed once. June 27 the non-protein nitrogen was 38.7 mgm., July 2 32.6. The patient was much worse, and was believed to be slowly dying. July 3 the renal function was 50%, July 7 35%. Considerable edema developed. July 8 he was rational and seemed brighter. He continued however to be quite irrational at night. Codeia seemed to control him. Caffein had very good effect on the general condition. He now slept more than formerly, but continued to have periods of considerable excitement. By July 18 he was quite delirious most of the time. He constantly pulled out the suprapubic tube. He continued with no apparent improvement or decline. It was believed that he was a senile psychotic.

August 21 he walked a little. September 1 the suprapubic tube was removed and a urethral catheter was put in place. The wound was closing. September 3 the renal function was 15%, September 4 and 10 20%. September 4 the wound was closed and dry. September 7 he was in fine condition, was up in a chair and walked a little every day. The urethral catheter was draining well. The suprapubic wound was opened up. There was a little drainage through it. The suprapubic wound continued to drain occasionally when the bladder became overdistended. The catheter, however, worked well. The patient gained strength rapidly. September 14 he walked a number of feet unassisted. September 18 the sinus seemed healed. The urethral tube was clamped off every fifteen minutes that day. The renal function was 25% September 11, 20% September 16 and 19. September 21 the patient was voiding normally every half hour during the day and five or six times during the night. There was no pain or burning. There was slight dribbling at the end of micturition, and a little nocturnal incontinence. There was no residual. The general condition was excellent. That day he was discharged.

Discussion

BY DR. EDWARD L. YOUNG, JR.

When any man of seventy comes in with a paradox such as retention and incontinence the answer almost certainly is overflow bladder, that is to say, an obstruction, on the chances prostate, possibly stricture, which overdistends the bladder until the point where the intravesical pressure exceeds the back pressure of the obstruction, at which time the bladder simply overflows.

His family history and past history do not help in the story at all, and his present illness tells us little more than the actual initial complaint.

The examination is very brief, the only point being that it shows us nothing abnormal, even including the rectal examination. But we must remember that the feel of the prostate by rectum does not necessarily tell us what it is doing on the bladder side.

The only thing to do with this man, of course, is to cystoscope him and see whether or not there is prostatic obstruction. We do not believe it is stricture, because he was catheterized following retention two years before. There is no record of blood in the urine, so that it almost certainly is not tumor. He has not the irritability that would go with stone, so that on the chances he has got prostatic obstruction due either to an adenomatous enlargement of the intravesical portion of the prostate or to the small fibrous type of prostate, which is a contraction causing a stricture of the neck of the bladder. I think it is fair to assume that after two years of trouble there is a certain amount of damage to the kidneys, although if he has been emptying his bladder fairly well until two months before admission this damage may be very slight.

Of course one important thing to rule out in a case such as this is the retention from cerebral nervous system disease. Not infrequently we find that the first symptom of tabes comes from the bladder; it may be either retention or complete incontinence, depending on the type of nerve destruction. But inasmuch as they tell us the reflexes are normal it seems to me that obstructing prostate is the best diagnosis.

First cystoscopy, June twelfth

Prostate enlarged intravesically. In base of bladder was a necrotic tumor, apparently malignant papilloma. View was not very good. Patient put on constant drainage for several days.

Further Discussion

The first cystoscopy shows an enlarged prostate and what the cystoscopist assumes is a

necrotic tumor of the base of the bladder. Inasmuch as any tumor is almost certain to show some bleeding I think we must assume either that the patient has had bleeding which he has not noticed, or that a further study will show that this is not a tumor.

I assume that the first operation was a suprapubic cystotomy to give bladder drainage in order to stabilize the kidneys, get them in as good working shape as possible before prostatectomy.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

First stage cystotomy for prostate.

PRE-OPERATIVE DIAGNOSIS

Not recorded.

FIRST OPERATION, JUNE THIRTEENTH

Novocain. A ring of local injection was made around the base of the penis and a second ring just posterior to the glans. Foreskin drawn over the glans and clamped with a curved hemostat. Excess excised. Skin and mucous membrane edges approximated with catgut. Hemostasis.

FURTHER DISCUSSION

There is no need of assuming that we could have the powers of mind reading, so I see no reason to feel sorry because we could not foresee a circumcision.

The fact that he was stuporous always arouses a suspicion of beginning uremic poisoning, but the non-protein nitrogen is within normal limits, although at the upper level. His renal function also is not only within normal limits but very high for this case.

The second cystoscopy still convinces them that there is a bladder tumor, and I think this second operation must be what I assumed for the first, a suprapubic cystotomy. Just to be nasty I am going to say that they will not find a bladder tumor when they actually have the bladder in view.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Obstructing prostate; no bladder tumor.

PRE-OPERATIVE DIAGNOSIS

Tumor of the bladder.

SECOND OPERATION, JUNE TWENTY-FIRST

Spinal novocain. The bladder was opened with the escape of foul pus. Careful exploration of the bladder showed general thickening of the bladder wall. There was a marked *bas fonde* behind the trigone. Ureteric ridges stood out prominently. Prostate not enlarged, but the posterior lip presented as a sharp ridge. Absolutely no sign of tumor was found. Posterior lip of prostate cut away with Young's punch. Catheter in urethra. Suprapubic tube.

FURTHER DISCUSSION

This time we were right. The bladder was opened to give drainage. It is interesting to note that they did not find the tumor. I think this is not surprising. I have seen a blood clot operated on as carcinoma, and a slightly roughened, temporarily reddened area of the ureteric ridge operated on for cancer, and conditions where no abnormality at all could be found when the bladder was opened operated on with the same diagnosis of malignant disease. So it is always necessary to be very sure of a cystoscopic picture of tumor before going to the logical conclusion of operation. Also, however, they found that the condition was not an adenomatous enlargement of the prostate, but a contracture with elevation of the bladder neck. This alone, of course, would not cause an overflow bladder, but when we look back and see that the acute retention followed a drinking bout we understand that the complete retention was the result of an acute congestion of the prostate and that regular catheterization would have relieved the situation by allowing the congestion to quiet down, which it did not do with the constant pressure behind it. They did the only thing possible in this type of obstruction and that is to cut away the lower neck of the bladder where it was elevated. It is always more difficult to heal a suprapubic wound following this than it is following a complete prostatectomy, because the outlet, in spite of everything, is not so clear as though the complete operation had been done.

Following this operation the patient went through a series of accidents which I think we must lay to a general arteriosclerotic condition, but which if it had not been for the normal non-protein nitrogen and renal function we could have laid in part at least to uremia.

He made a very slow but steady progress. The suprapubic wound did what it is very apt to do in such a case, opened and closed a number of times. The function stayed about twenty or twenty-five per cent., which is entirely satisfactory. He was finally discharged with a tight wound and apparently voiding normally. The later report from the Out-Patient Department shows a very satisfactory result, although he has a chronic cystitis which he will never part with.

LATER NOTE

The Out-Patient Department records show a visit November 3. The frequency was at that time six times by day and four at night. The

urine was cloudy. A No. 16 Coudé catheter was passed to the bladder. There was one ounce of residual.

MEDICAL HISTORY

AMBROSE PARE AND ST. BARTHOLOMEW

THE following concerning Ambrose Paré and the St. Bartholomew Massacre is from Guizot, who quotes Brântome. (Guizot, History of France, Charles IX, 1560-1574.)

"At this juncture the king saved from massacre none but his surgeon, Ambrose Paré, and his nurse, both huguenots; on the very night, after the murder of Coligny, he sent for Ambrose Pareé into his chamber, and made him go into his wardrobe," says Brântome, "ordering him not to stir, and saying, that it was not reasonable that one who was able to be of service to a whole little world should be thus massacred." A few days afterward, "Now," said the King to Paré, "you really must be a Catholic." "By God's light," answered Paré, "I think you must surely remember Sir, to have promised me, in order that I might never disobey you, never, on the other hand, to bid me do four things, find my way back into my mother's womb, catch myself fighting in a battle, leave your service or go to mass." After a moment's silence, Charles rejoined, "Ambrose, I don't know what has come over me for the last two or three days, but I feel my mind and my body greatly excited, in fact just as if I had a fever, meseems every moment, just as much waking as sleeping, that those massacred corpses keep appearing to me with their faces all hideous and covered with blood. I wish the helpless and innocent had not been included." And in consequence of the reply made to him, adds Sully, in his Œconomies royales, "the next day issued his orders prohibiting, on pain of death, any slaying or plundering, the which were, nevertheless very ill observed, the animosities and fury of the populace being too much inflamed to defer to them."

THE PRISONS OF PARIS

A study of the voluminous literature concerning the past history of these sinister piles through the centuries gives episodes and descriptions replete with medical interest. Among the most interesting accounts of these is Hopkins' "The Dungeons of Old Paris."

THE ORIGIN OF SAINTE-PELAGIE

Hopkins gives the following interesting description of this famous or rather infamous prison.

"The prison of Sainte-Pelagie owed its name to a frail beauty whom playgoers in Antioch knew in the fifth century of this era. Embracing Christianity, she forsook the stage, and built herself a cell on the Mount of Olives. The Church bestowed on her the honours of the Calendar. Twelve centuries later, in the reign of Louis XIV, a Madame de Miramion, inspired by the memory, not of Pelagie the *comidienne,* but of Sainte-Pelagie the recluse, built in Paris a substantial refuge for young women whose virtue seemed in need of protection . . . Sainte-Pelagie continued its pious destiny until the days of the revolution, when the cloister of the Magdalen's became a prison."

"At the time of the revolution there were about three hundred and fifty prisoners, none knowing for what they were detained, each one occupying a cell six feet square, with a dirty bed, and a mattress as hard as marble. The rations at this time were, a pound and a half of bad bread, and a plate of flinty beans, larded with stale grease or tallow. The dirtiest and worse kept part of the prison is the infirmary. Two or three patients are put into one bed—an excellent means of spreading the itch, and other maladies."

THE CONCIERGERIE

This, Hopkins tells us, is the oldest prison in Europe, the architecture reflecting the ages through which the building has passed. He says, "In the days when Paris had not so much as a gate to shut in the face of the invader, the citizen raftsmen of the Seine thought it well to have a prison, and dug a hole in the middle of the isle. This was the sorry beginning of the Conciergerie. From the time of the incarceration of Marie Antoinette to the end of the Terror, the Conciergerie offered such a spectacle as was never seen within the walls of any prison."

Hopkins quotes Nougaret concerning the sick in the infirmary. "There were frightful fevers there, and you took your chance of catching them. The patients lying in pairs, in filthy beds, were in as wretched a plight as ever mortals found themselves in."

"The doctors hardly condescended to examine them. They had one or two potions, which, as they said, 'were saddles for all horses,' and were administered quite indiscriminately."

"It was curious to see with what an air of contempt they made their rounds. One day the head doctor approached a bed and felt the patient's pulse. 'Ah,' said he, to the hospital warder, 'the man's better than he was yesterday.' 'Yes, doctor, he's a good deal better —but it is not the same man. Yesterday's patient is dead, this one has taken his place.' 'Really,' said the doctor, 'that makes the difference. Well, mix this fellow his draught'."

APOLLONIUS

IN reading the Life of Apollonius, I came across the following statements which to me were interesting.

"I would ask you, my prince, to consider the following points. The liver, in which adepts

in this art declare the tripod of their diviniation to reside, is on the one hand not composed of pure blood, for all unmixed blood is retained by the heart *which through the blood vessels sends it flowing as if through canals* over the entire body: the bile, on the other hand, lies over the liver and whereas it *is excited by anger* it is on the other hand *driven back by fear* into the cavities of the liver."

It seems from the above that he had some idea of the circulation of the blood and also about the influence of emotions on metabolism. —*"Life of Apollonius." Book* 8, *Chapter* 7, *Volume* 2, *Page* 347.

HILBERT S. DAY.

CURRENT LITERATURE

ABSTRACTORS

GERARDO M. BALBONI — TRACY MALLORY
WILLIAM B. BREED — HERMAN A. OSGOOD
LAURENCE D. CHAPIN — FRANCIS W. PALFREY
AUSTIN W. CHEEVER — EDWARD H. RISLEY
RANDALL CLIFFORD — GEORGE C. SHATTUCK
ERNEST M. DALAND — WILLIAM H. SHEDDEN
HORACE GRAY — WARREN R. SISSON
ROBERT M. GREEN — JOHN B. SWIFT, JR.
JOHN B. HAWES, 2D — GEORGE G. SMITH
JOHN S. HODGSON — W. T. SHERMAN THORNDIKE
FRED S. HOPKINS — WILDER TILESTON
CHESTER M. JONES — HENRY R. VIETS
CHARLES D. LAWRENCE — SHIELDS WARREN
BRYANT D. WETHERELL

INTRACRANIAL ARTERIO-VENOUS ANEURISM OR PULSATING EXOPHTHALMOS

LOCKE, C. E., JR. (*Annals of Surgery*, July, 1924).

The author gives a quite complete historical sketch of this rather unusual condition. He reports on 588 cases. Of these, a certain per cent. were spontaneous, about 23 per cent., and 76 per cent. traumatic in origin. He discusses the pathology and gives some excellent drawings showing the anatomical conditions present, also several interesting photographs with case histories. In regard to treatment, the author finds that digital compression of the carotid artery will cure a certain percentage of cases. In DeSchweinitz's report, 27 cases were treated in this manner, with 37 per cent. cures, or improved. The other most successful treatment is ligation of the common carotid artery. This method of treatment was reported as early as 1805 by Travers.

The author states:

1. If prolonged periods of carotid compression stop the bruit and do not cause signs of cerebral anemia, beneficial therapeutic results are to be expected.
2. If the cerebral compression test shuts off the bruit yet gives headache or motor or sensory signs on the opposite side, a thorough course of compression is indicated.
3. If the carotid compression test neither shuts off the bruit nor causes signs of brain anemia, then a prolonged course of carotid compression is not indicated and will not be of much value, and operation is needed.

[E. H. R.]

CHRONIC PRODUCTIVE THYROIDITIS

ST. GEORGE, A. V. (*Annals of Surgery*, July, 1924)

This author draws the following conclusions from his study of this condition:

1. Riedel's iron-hard struma is analogous to chronic productive thyroiditis.
2. It is a comparatively rare lesion.
3. Its etiology is obscure, though the possibility of its pathogenesis in the form of an end-process, in association with infections, adenomata and organization following hemorrhage must be considered.
4. It is generally considered malignant clinically, but its benign nature is apparent upon histologic examination. No recurrence has been reported in the literature.
5. Operative removal is the usual form of treatment. However, it may be well worth while to attempt its removal by radium or Röntgen-ray treatment, providing the benignity of the lesion is first established.

[E. H. R.]

PRESENT STATUS OF THE SURGICAL TREATMENT OF CHRONIC DUODENAL-GASTRIC ULCER

PECK, C. H. (*Annals of Surgery*, July, 1924).

This author analyzes the results from gastro-enterostomy to those from excision, and draws the following conclusions:

1. Surgical treatment of duodenal ulcer should not be resorted to until it is evident that the case is chronic and that medical treatment has failed to give adequate relief or to effect a cure.
2. The operation of choice should be simple gastro-enterostomy without pyloric exclusion. The more radical methods of resection should be reserved for cases with severe hemorrhage; those in which the simpler operations have failed to give relief or cases of gastro-jejunal ulcer.

Gastric ulcers, or cases in which the ulcer has invaded and passed the pylorus into the stomach wall are not considered in this summary.

3. A lasting clinical cure may be expected in at least 80 per cent. to 90 per cent. of cases treated by simple gastro-enterostomy.

[E. H. R.]

THE TREATMENT OF ACUTE MECHANICAL INTESTINAL OBSTRUCTION BY HIGH TEMPORARY JEJUNOSTOMY

LEE, W. E., and DOWNS, T. McK. (*Annals of Surgery*, July, 1924).

In a brief paper with illustrated cases, these authors discuss this condition and draw the following conclusions:

1. The cause of death in acute mechanical intestinal obstruction is toxemia from absorption of toxic intestinal contents.
2. The indications for the surgical treatment of acute mechanical intestinal obstruction are, in the order of their importance: (1) to eliminate the toxic material from the body as rapidly as possible; (2) to relieve the bowel from the distension which paralyzes it; (3) to restore the lumen of the intestines and to reëstablish the fecal current.
3. Of the various methods suggested to meet these indications we feel that a high jejunostomy performed with a rubber tube after the technic of a Witzel gastrostomy is the most satisfactory procedure.
4. The procedure should be used, alone or in combination with other procedures, in all cases of acute mechanical intestinal obstruction of over 24 hours' duration which are submitted to operation.
5. The stoma left on the withdrawal of the rubber tube closes promptly when the need for it has passed.
6. This method when used as a temporary expedient will at times allow an apparently hopeless patient to improve to such an extent that more radical procedures may be attempted later when there is some hope of success.

[E. H. R.]

Idiopathic Osteopsathyrosis (Fragilitas Ossium)

Wagoner, G. W. (*Annals of Surgery*, July, 1924).

This author reports a very interesting case of this condition and draws the following conclusions:

1. A case of idiopathic osteopsathyrosis (fragilitas ossium) occurring in a negro 38 years of age is here reported.
2. The patient has suffered, as the result of a slight trauma, approximately 45 fractures of the long bones.
3. The calcium and phosphorus content of the blood plasma and the calcium, phosphorus and magnesium content of the bone are normal. The basal metabolic rate is increased; there are marked exophthalmus, palpable thyroid, immature genitalia, shallow pituitary fossa, mild tachycardia, blue sclerae and impaired hearing.
4. No history of syphilis, infection or familial predisposition to bony fracture or disease can be elicited. There is no history of blue sclerae in the members of the immediate or remote family.
5. Microscopic examination of the cross-section of the tibial shaft procured by amputation of the left leg shows a broken and thinned cortex, distended Haversian canals, increased bone resorption and new bone formation.
6. Photographs of the patient, röntgenographs o the bony skeleton, and photomicrographs of the bone sections are embodied in the paper.

[E. H. R.]

Lack of Operative Indications in Asthma and Other Forms of Allergy

Lintz, W. (*Annals of Surgery*, June, 1924).

This author discusses this article briefly and draws the following conclusions:

1. A large number (30.4 per cent.) of asthma and other forms of allergic patients are operated upon. Most of these operations are needless and useless.
2. Nose and throat operation are the ones most frequently performed. The benefit derived from these operations is negligible and should be abandoned for the cure of asthma and hay fever.
3. Indigestion of allergic origin is frequently mistaken for appendicitis.
4. Patients who were operated upon the pelvic organs failed to derive a cure or the slightest benefit from their asthma or hay fever.
5. As these patients were operated upon not by any one surgeon, or in any one hospital, but by surgeons and hospitals generally, the final results justify the conclusion that we have no operation up to date which will cure or even benefit asthma or hay fever.
6. It may be argued that these cases represent only the operative failures, those cured I do not see. This reasoning is fallacious since none of these operations render the patient immune from further sickness. I would have obtained from patients the definite history that operation eradicated asthma or hay fever. Thus far I have obtained no such history.

[E. H. R.]

The Incidence of Post-Operative Catheterization in the Johns Hopkins Hospital

Mills, R. G. (*Annals of Surgery*, June, 1924).

This author presents a paper of 26 pages of extremely thorough analysis and giving a tabulation into various groups according to type of operation, organ operated on, social condition, influence of sex, etc., in 2254 patients, case records taken mainly from the Johns Hopkins and compared also with those at St. Luke's Hospital. The author presents the following very complete summary:

1. The post-operative histories of 2254 patients are here summarized, of which 279, or 12.38 per cent., were catheterized. These were largely from the gynecological and surgical services, the former being subject to definite rules as to the time allowed for urination, the latter being governed by individual orders issued by the house staff.
2. Comparison with a previous series indicates great advance in surgical technic, but no decrease in the percentage of patients catheterized. The frequency with which the catheter was used for diagnostic purposes has greatly increased.
3. The body has been arbitrarily divided into regions and the operations have been grouped and compared. Urinary retention appears to be most frequent in those groups involving the pelvic structures and to decrease in frequency as that region is departed from.
4. Urinary retention is favored by shock and consequent low blood-pressure with recreased output of concentrated urine, by pain, nausea and vomiting, plugs, packing and other mechanical factors causing perineal pressure, and by the presence of a neurotic temperament, having some relation to race and sexual activity. Such difficulty before puberty was not observed.
5. A distinct advance is noted in the freedom with which patients are allowed fluids both before and after operation, as compared with a decade ago.
6. The act of urination in bed can be made much easier in many cases by accustoming the patient to the use of the bed pan before operation; by placing the patient in as comfortable a position as possible, free from strain on any set of muscles, particularly those of the perineum; by allowing as much freedom of motion in bed as the operation will permit, and by raising the patient as near the vertical position as possible.
7. Women are much more liable to bladder disturbances than men, a condition for which a relaxed perineum is often responsible. Chronic vesical distention with insufficiency frequently follows and is usually indicated by cystocele. Retention in parous women is often due to degenerative changes in the bladder wall, while that in nulliparous women is frequently of neurotic origin.
8. Marriage had no noticeable effect upon catheterization in men, but is clearly of importance in women. The percentage of catheterization of married women was more than twice as high as for single women. The difference was especially noticeable in the women married very young, and became less marked in the decades following. It appears that a strong sexual instinct, a more or less unstable nervous temperament and bladder difficulties after operation are commonly associated.
9. The white race was probably more liable to urinary difficulties after operation than the colored. The latter seemingly bear moderate pain quite well, but lose control of themselves in emergencies or in severe pain. Colored women whose operations involved the pelvic or abdominal organs were frequently catheterized, but the catheter was not used on a single colored man.
10. Laparotomy and the technic that goes with it was responsible for retention in many female patients, the addition of minor operations on the peritoneum, such as removal of the appendix, having little influence in raising the incidence.
11. In the group comprising operations on the abdominal organs, four times as many women were catheterized as men. Operations on the pelvic organs of women caused retention to a still greater degree.
12. The pressure on the bladder in suspension of the uterus is not ordinarily sufficient to disturb its function unless associated with other operations that compromise its blood or nerve supply.
13. Nervousness in hyperthyroidism was responsible for several cases of retention, but was far less potent in its effect than when associated with pelvic conditions.
14. The importance of residual urine as a predisposing factor in cystitis is being more generally recognized and there were definite evidences that

the catheter was used for its detection when the patient voided small amounts of urine.

15. The use of the catheter is indicated before operation for the diagnosis of possible residual urine or to facilitate the procedure, and after operation for the same purpose following the first voluntary urination. If residual urine is found, catheterization should be continued as long as it is present. In such an event treatment for an anticipated cystitis should be instituted immediately the diagnosis is made.

16. Physicians and nurses should consider that the function of the catheter in post-operative conscious patients within the first 24 hours may be the relief of pain due to an accumulation of any amount of urine in the bladder, and is not for the mere mechanical withdrawal of that fluid to prevent a possible overdistention or rupture of that organ except where bladder changes are known to exist or under conditions of pelvic abnormality in women where they are suspected. There is no evidence that a normal bladder distended beyond the ordinary limits is injured thereby and will not immediately return to its former condition after functional control has been restored.

[E. H. R.]

Conclusions Based on a Study of Four Thousand Cases of Goitre

Jackson, A. S. (*Annals of Surgery*, June, 1924).

This author presents a very concise paper on this much discussed subject and brings out several important points.

The author states that the study of goitre is complex and much confusion exists over the prognosis. He believes that a simple classification is essential, and suggests the following: 1. Colloid. 2. Adenoma: (a) With hyperthyroidism (toxic adenoma); (b) without hyperthyroidism (simple adenoma). 3. Exophthalmic goitre (Basedow's or Graves' disease). 4. Tuberculosis, malignancy, syphilis, thyroiditis actino-mycosis, and so forth. The usual text-book classification of goitre is confusing. The various clinical types of cystic, calcareous and hemorrhagic goitre are merely forms of adenoma.

1. Colloid goitre appears at puberty and is seen in 60 per cent. of girls between the ages of 16 and 20 in the goitre district of the Middle West.

Factors in the etiology of colloid goitres are: A deficiency of iodine in the soil and consequently in the drinking water; an excessive demand upon the thyroid gland for thyroxin by the system; an undue mental and physical strain imposed upon the thyroid by modern scholastic requirements and social obligations.

This type of goitre may be prevented by administering 10 mg. of sodium iodide once a week during the school year, as proved by Marine and Kimball. Apparently adenomas develop in neglected colloid goitres as a form of compensatory development. Consequently the incidence of adenoma of the thyroid is decreased by the prophylactic treatment of colloid goitre.

The popular interest which has been aroused in the treatment of goitre by iodine has greatly increased the number of cases of iodine hyperthyroidism, iodine being a specific in the prevention and cure of colloid goitre provided no adenomas are present. If in doubt as to the presence of an adenoma of the thyroid, do not give iodine. Thyroidectomy is indicated in the majority of patients of more than 23 years of age with adenomas of the thyroid. In this condition the gland is asymmetrically enlarged and one or more nodules may be palpated, while in exophthalmic goitre the gland is symmetrically enlarged.

Speaking of exophthalmic goitre, the author states that the basic metabolic rate is not an indication of the patient's ability to undergo operation, but as a diagnostic aid and post-operative proof of the result it is invaluable. The average basic metabolic rate is +54 per cent.

An examination of the vocal cords should be made in every case of adenoma of the thyroid. Laryngeal examination would show partial or complete paralysis of one or both cords in one in every 15 cases. This evidence may prove important from a medical and legal standpoint post-operatively.

Eighty-five per cent. of the cases of toxic goitre are cured by surgery. X-ray and radium are contraindicated in the treatment of any kind of goitre except exophthalmic. In these cases treatment must be continued over a long period of time and with only uncertain results.

[E. H. R.]

The Experimental Production of an Arsenic Resistant Strain of Spirochaeta Pallida in Rabbits

Klauder, J. V. (*Arch. Derm. and Syph.*, Vol. 9, No. 4, April, 1924) reviews the literature which suggests that the spirochaeta pallida may become arsenic fast and then describes his work along that line in experimental syphilis. He found that the resistance to arsenic of the strain of spirochaeta which he studied was increased to a maximum of 68 per cent., since the therapeutic active dose of 0.006 gm. of arsphenamin in the control animals was raised to a maximum of 0.01 gm. in the animals studied. To obtain this result it required a total of nine treatments with ascending doses of arsphenamin and a total of six transfers of the infection from one animal to another. The increased resistance to arsenic applied only to the action of the therapeutic active dose. The curative dose of arsphenamin in rabbit syphilis, about 0.012 gm. per kilogram, remained as such in the animals studied. The increased resistance was striking within these limits, beyond which no further increase developed.

[A. W. C.]

Foreign Bodies in the Bronchi

McCrae, T. (*The Lancet*, April 12 & 19, 1924), discusses foreign bodies in the bronchi. The accompanying photographs of the various types of foreign bodies aspirated are particularly instructive, as they illustrate the great variety of articles commonly aspirated. In discussing the symptoms he says that there may be great variation in the immediate symptoms. If the body remains in the trachea there is usually extreme distress with dyspnoea, decreased if the object passes into a bronchus. A movable body in the trachea usually causes marked distress. An object such as a safety-pin may result in slight symptoms only. In many cases there is considerable distress with choking, strangling, and coughing, which however soon lessen. In some cases in adults who knew that the object had passed into the air passages, the statement is made that there was surprisingly slight discomfort. Naturally, the size and character of the object influence markedly the severity of the initial symptoms. Certain cases in adults in which there was no knowledge of even the possibility of a foreign body having gained entrance to the air passages prove that there may not be sufficient symptoms at the time of aspiration to attract attention.

[R. C.]

Origin of Gastric Ulcer

Müller, from his own medical clinic at Tübingen, reports (*Münch. med. Woch.*, May 2, 1924) his investigations on the origin of round gastric ulcer. He finds that in all cases there is dysharmony of the peripheral vascular system, which vasonemosis is the predisposing cause of ulcer.

[R. M. G.]

THE BOSTON

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TUBERCULOSIS AND THE GENERAL PRACTITIONER

EVERY reader of the JOURNAL should read "The Responsibility of the Medical Profession toward Tuberculosis" appearing in this issue. In this paper Dr. Hawes presents his reasons for believing that the general practitioner is every year taking less interest in the problem of tuberculosis. The chief causes for this lack of interest he believes to be the slight attention given to the subject in most medical schools, and the refusal of many general hospitals to accept cases of early tuberculosis for study. As a result of these two factors, the young graduate in medicine has no appreciation of the importance of the disease, little knowledge of its early manifestations, and but few ideas as to how cases of early pulmonary tuberculosis should be managed.

The JOURNAL believes that Dr. Hawes is qualified to speak with authority in this matter, and agrees with him that a lack of interest in this problem argues ill for the success of all anti-tuberculosis work. The admittance to the wards of general hospitals of a limited number of early cases should be allowed. The period of most intensive education in a medical man's career is that of his interneship; if during that time he sees little or nothing of the disease which holds third place in the list of fatal diseases, he is bound to underestimate its importance. It is to be hoped that those in charge of the policy of medical schools and hospitals will seriously consider these suggestions, and will take measures to bring students and internes into closer contact with tuberculosis.

Dr. Hawes remarks upon the small number of papers on tuberculosis presented at medical meetings. That a similar indifference to tuberculosis has not been manifested by the BOSTON MEDICAL AND SURGICAL JOURNAL is proved by the number of articles dealing with this subject which were published in the JOURNAL during the period from July 1, 1923, to July 1, 1924. These articles comprised the following:—

Book Reviews	5
Correspondence	4
Editorials	7
Miscellany	8
Original Articles	5

This indicates the disposition of the JOURNAL toward the tuberculosis problem. We are glad to coöperate in this important feature of medical work.

A NEW DEGREE IN PUBLIC HEALTH

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY, the first technical school to give instruction in sanitary science and public health, will offer a new course during the coming year, leading to the degree of doctor of public health.

The health teaching activities of Technology were developed under the leadership of the late Professor William T. Sedgwick, for thirty years head of the department of biology and public health, and under this development students have been graduated who have taken high places among the health workers of the country.

A year ago officers picked from the army medical corps were allowed to qualify for the doctorate in public health, and the new course which will be opened to civilians is simply an expansion of this same service. The new degree will be placed on the same level as the degrees of doctor of science and doctor of philosophy, and will in general require at least three years of graduate work for those possessing the bachelor's degree.

Recognizing the fact that many phases of public health work are more intimately associated with the engineering than with the purely medical sciences, the authorities at the Massachusetts Institute of Technology rightly believe that the course should be given chiefly from this angle, although supplemented by courses of study on the medical aspects of public health.

The preservation of the health of the public and in general the broad subject of medicine with all its ramifications is no longer a limited individual specialty. All the branches of

science have been drafted into its service. The chemist, the biologist, the builder—all contribute their share in the great problems of safeguarding health, and the workers in health fields draw heavily on the product of their co-laborers.

The drawing together of our population into great cities with ever-increasing problems of food and water supply and waste disposal; the intricate mechanism of communication between these are causing ever-multiplying problems in city and town and county and between nations; the solution of which the engineer and the chemist must work side by side with the bacteriologist and the man of medicine.

LEGAL OBSTRUCTIONS

After the action of the Board of Registration in Medicine revoking the registration of Doctor Shurtleff, Dr. George H. Davis, alleged to have been a successor of Dr. Shurtlff, was summoned before the Board for a hearing August 14.

A restraining order has been issued by a Court forbidding the Board to hold the hearing on the case of Davis until after the appeal of Dr. Shurtleff to the Supreme Court has been acted on.

It is reported that Dr. Davis intends to test the constitutionality of act under which the Board is acting.

The activities of the Board of Registration in Medicine have been attacked several times through appeals to the Supreme Court.

It is always possible that careful study by many lawyers has failed to discover a weak link in a law. It is equally possible that an administrative board may have failed to follow the technical requirements of the law. An opinion by anybody other than the court at the present time would be impertinent. We shall see later.

THE BULFINCH BUILDING

September 1, 1821, was an epoch-making day in the history of medicine in Boston—indeed in the country—for on that day the first patient was admitted to the wards of the Bulfinch Building, the original Massachusetts General Hospital. On September 21 of the same year the first surgical operation within its walls was performed. The old hospital stands as an everlasting monument, first to its founders, John C. Warren and James Jackson, who were largely instrumental in securing the one thousand and forty-seven subscriptions with which it was erected—of granite blocks cut by the Charlestown prisoners—and second, to the great group of physicians and surgeons who have made it famous and who, through serving it, have become themselves famous.

Of this group but a few need be named if any explanation is needed of the pride which we in Boston take in this our oldest hospital; such were the Warrens, the Bigelows, the Jacksons, the Cabots; Mixter, Parkman, Holmes, Richardson, and Fitz. The advances they made were real ones, for as Cushing said in his contennial address, "Anaesthesia christened by Holmes, litholapaxy by Bigelow, appendicitis by Fitz, are three unquestioned offspring of the Massachusett General Hospital whose names are enrolled in the baptismal register of medical terms."

The old building in its present, or rather in its recent state is familiar to us all. Only those, however, who have seen older cuts of the hospital or who have delved into the earlier volumes of the Boston Medical and Surgical Journal are familiar with its original abbreviated form, for during many years it lacked the present extensions to the wings that give it its modern size and grace. The ancient wood cut with which each number of the Journal was prefaced show the original smaller structure with the smaller wings, but with the famous ether dome; the birthplace of painless surgery. The present reconstruction of the east wing has revealed, beneath the plaster of the walls that separated the medical wards, the original intact stone ends of the building.

The medical wards of this wing are no more; they are undergoing a rebirth. The familiar central chimneys have vanished; the roof is gone, and with it the charred timbers, mementos of former fires, that upheld it. The ivy has been torn, or, we trust, tenderly removed from the old stone walls, and only the shell remains. For the first time the hospital has asked and received of a generous and appreciative public, and, with the gift of the General Education Board, the wards are being rebuilt, a laboratory annex is being constructed, and, still unchanged in outward form and within its original walls, the building will continue its traditions as the nucleus of a hospital that has done much to further the progress of medicine.

THE BULFINCH BUILDING
OF THE
MASSACHUSETTS GENERAL HOSPITAL

As reckoned by Guy's or the age of Old Bart's,
It's not very old, as time's paces are counted,
But it's near and it's dear to a host of old hearts
That have quickened a bit when its stairways were mounted.

(For they furnish a functional test of a sort,
Do those circular stairways of stone, to be truthful;
Those stairs with no visible means of support,
That Bulfinch designed when the nation was youthful.)

May those smooth-quarried stairways, worn smoother by feet
That have gone to their rest with the owners they carried,
Cling firm to the walls they so solidly meet,
And remain on good terms with the feet that have tarried!

Did the steps of Old Col press as firmly that day
When he climbed to the dome and the watchers that doubted;
When to Surgery's future he pointed the way,
And the scorners and scoffers forever were routed?

For that day's work alone these gray walls must remain
As a marker of progress and worthy tradition;
Here Morton delivered the knife of its pain,
And ethereal vapor set forth on its mission.

A century's gone; it's been weighed and appraised,
And the good and the bad have been filed in their cases,
But the stones that the builders selected and raised
Have been wakened at last in their slumberous places.

For the ivy's been stripped from the sturdy gray walls
And the seared rafters show where men once had fought fire,
And the plaster is heaped in the underground halls,
For they're raising a son to the worthy old sire!

The floors that the Warrens and Jacksons have trod;
The wards where old Fred made his visits have vanished;
They're inherited now by the knights of the hod,
And the capes and the caps that we welcomed are banished.

But it's only a phase, for the walls are still there,
And the ivy'll climb back; may it grow there forever,
As a thread to the future that promises fair,
And a bond with the past that no power can sever!

JOG.

MISCELLANY

WEEKLY REPORT OF COMMUNICABLE DISEASES REPORTED TO THE STATE DEPARTMENT OF HEALTH OF MAINE

FOR THE WEEK ENDING JULY 26, 1924

Chickenpox

Auburn	1
East Millinocket	3
Fort Kent	1
Portland	3
	8

Diphtheria

Dexter	1
Fort Fairfield	1
Lewiston	1
Orland	1
Portland	2
Sanford	1
Stonington	1
Westbrook	1
	9

German Measles

Portland	1

Gonorrhea

Alfred	2
Auburn	1
Augusta	1
Bangor	9
Bath	1
Bar Harbor	1
Canaan	1
Islesboro	1
Livermore Falls	1
Lewiston	1
Madison	1
Portland	6
Rockland	1
Sanford	1
Waterville	1
Woodland	1
	30

Measles

Brunswick	1
Fort Kent	1
Fryeburg	2
Kennebunkport	1
Lewiston	2
Limerick	1
Milo	1
Sanford	2
	11

Mumps

Lewiston	1
Portland	3
Readfield	3
Searsmont	1
Skowhegan	3
Waterboro	1
	12

Pneumonia

Lewiston	2

Scarlet Fever

Bath	1
Dexter	1
Ellsworth	1
Milo	1
Monson	1
Orrington	1
Stonington	1
Surry	1
	8

Smallpox

St. John Pl.	1

Syphilis

Bucksport	1
Mars Hill	1
Portland	2
Woodland	1
	5

Typhoid Fever

Ashland	1
Bucksport	1
Portland	2
Richmond	1
	5

Tuberculosis

Portland	1
Westbrook	1
	2

Whooping Cough

Biddeford	3
Pittsfield	5
Old Orchard	1
Sedgwick	1
Skowhegan	2
	12

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

DISEASES REPORTED WEEK ENDING AUGUST 9, 1924

Disease	*No. of Cases*	*Disease*	*No. of Cases*
Anterior poliomyelitis	6	Mumps	22
Chickenpox	23	Pellagra	1
Diphtheria	104	Pneumonia, lobar	26
Dogbite	7	Scarlet fever	51
Encephalitis lethargica	1	Syphilis	56
Epidemic cerebrospinal meningitis	2	Tetanus	2
Gonorrhea	132	Suppurative conjunctivitis	9
Influenza	1	Trichinosis	1
Malaria	1	Tuberculosis, pulmonary	128
Measles	40	Tuberculosis, other forms	16
Ophthalmia	9	Typhoid fever	11
		Whooping cough	59

DECLARATION OF GENEVA

THE Save the Children Fund International Union has drawn up and published in 36 languages the following declaration:

By the present Declaration of the Rights of the Child, commonly known as the "Declaration of Geneva," men and women of all nations, recognising that Mankind owes to the Child the best that it has to give, declare and accept it as their duty that, beyond and above all considerations of race, nationality or creed:

I. THE CHILD must be given the means requisite for its normal development, both materially and spiritually.

II. THE CHILD that is hungry must be fed; the child that is sick must be nursed; the child that is backward must be helped; the delinquent child must be reclaimed, and the orphan and the waif must be sheltered and succoured.

III. THE CHILD must be the first to receive relief in times of distress.

IV. THE CHILD must be put in a position to earn a livelihood and must be protected

against every form of exploitation.

V. THE CHILD must be brought up in the consciousness that its talents must be devoted to the service of its fellow-men.

AMERICAN CHILD HEALTH ASSOCIATION

At the Health Education Conference of the American Child Health Association held at the Massachusetts Institute of Technology last June the committee appointed to consider the duties of physicians, nurses, teachers and parents in relation to the examination of the child, reported as follows:

I. The aim of such an examination is to provide for every child a chance to achieve the limit of his endowed capacity for well-being.

II. The functions of the participants should be as follows:
   - A. Physician
     1. To provide guidance toward better health through education of the children.
     2. To provide an examination service which (1) discovers all physical defects, diseases, incipient conditions and tendencies toward ill-health among school children, (2) finds sources for remedy.
   - B. Nurse
     1. To assist the physician at the examination.
     2. To assist in interpreting results of the examination to child, teacher and parents in school and home through instructional conferences.
     3. To stimulate and secure correction of physical handicaps.
   - C. Teacher and parents
     1. To be present at the examination and to supply information relative to history and habits of the child.
     2. To secure the coöperation of the children through class and individual instruction.
     3. To gain knowledge from the examination that shall function as a basis for further health teaching.

III. In conclusion, the superintendent or principal may expect through the coördination of the work of physician, nurse, teacher and parent:
   - A. Better attendance
   - B. A reduction in undernourishment
   - C. A gradual decrease in preventable retardation.
   - D. A safe system of education from the standpoint of health, a larger appreciation of health ideals and a greater practice of healthy living throughout the community.

BOSTON TUBERCULOSIS ASSOCIATION, TWENTIETH ANNUAL REPORT (1923)

THE twentieth annual report of the Boston Tuberculosis Association, just from the press, includes two sections of official reports, a paper by Dr. David Russell Lyman, the financial and acknowledgment section and one giving the officers of the Association. The report of Dr. John B. Hawes, 2d., president, sketches very briefly the leading lines of work during the year 1923, namely, occupations for consumptives discharged from sanatoria, in which the Association is one of two recently to have initiated such efforts towards placement; the Modern Health Crusade, which as yet, not having been accepted by school departments in the larger cities, is maintained and presented by the Association; educational work, which includes publicity, exhibits, the Little Church on Wheels, which brings health education to the "man in the street" in terms that he can understand; institute for nurses and special lectures for physicians and the regular showing in dispensary waiting rooms of interesting lantern views intermixed with health mottoes.

Prendergast Preventorium now has interested in it no less than twenty-five different clubs and organizations which are giving it a helping hand. Association plans for the future include a tuberculosis survey of Boston and active interest in phlyctenular keratitis.

The report of Miss Bernice W. Billings, executive secretary, goes more into details, discusses the follow-up work, the information bureau and the lecture bureau, notes that three bulletins were published during the year for the information of practising physicians, and emphasizes the fact that the work of the Association is supported by the sales of Christmas Seals. Dr. Lyman's paper is entitled, "The Tuberculosis Problems as Applied to Children,"

COMMUNITY HEALTH ASSOCIATION STARTS DRASTIC CUT

THE financial emergency in the Community Health Association which recently forced the Board of Managers to inaugurate a vigorous retrenchment policy will mean that 144,000 fewer calls on the sick and untrained families in the crowded districts of Boston will be made by the Association during the next year than have been made in the past period of equal length, according to President William A. Dupee. This means that 480 fewer people will be cared for by the nurses each day, and will result in a reduction of the budget of $130,000 between September first and January 1, 1926.

Fifty trained nurses go off the payroll on September first, and a further cut may be necessary provided funds are not available for carrying on the work in the future. The Executive staff is also being depleted.

"It is difficult to estimate the disastrous re-

sults of the curtailment," said Mr. Dupee, "and it was only after careful consideration of every possible alternative that the Board felt justified in jeopardizing the lives and happiness of the thousands dependent to a large extent for their health and well-being upon the efforts of the Association. It is a very serious matter suddenly to cease so large a part of the humanitarian service after thirty-eight years of continuous effort and responsibility.

"The work of community health has increased tremendously during the year and a half since the Association was formed by the amalgamation of the work of the Baby Hygiene Association and the Instructive District Nursing Association. In the past year the number cared for by the combination of the two organizations has increased from 13,678 to 16,436 people while the financial support has not kept pace with the growth."

MAYOR CURLEY LENDS AID

Mayor Curley, upon being informed of the danger which would result from curtailment of the Community Health work, at once agreed to take over the baby hygiene work in several of the more crowded districts of the City. As a result of his efforts the City on September first will assume complete charge of the work among the babies in Charlestown, East Boston, and the North, South and West Ends. This work will be under the direct supervision of Dr. F. X. Mahoney for many years Commissioner of Health for the City of Boston.

In spit of the City's help, the Community Health Association is faced with the necessity of carrying on its baby hygiene work in 10 out of 15 districts formerly served. That the work among the babies is undoubtedly worth while is shown by the fact that during the fourteen years during which the work has been done, the infant mortality rate in the city of Boston has dropped from 120.10 per 1000 to 82.49—a striking reduction which means that in a single year, 1923, the lives of 760 babies were saved which would have been lost under conditions which prevailed 14 years ago.

SCOPE OF THE ASSOCIATION'S WORK

The baby hygiene is only one phase of the Association's work. In addition a staff of nurses is engaged in bedside nursing, going from home to home whenever the call comes for a nurse's ministrations. Last year alone 212,868 nursing visits were made to the sick.

The Association also conducts pre-natal classes, and baby classes for the mothers, wherein they are given training in the care for their babies.

Two of the most progressive developments in preventive medicine are the posture classes and mental habit clinics now being carried on by the Community Health Association. Both of these efforts are at present in the experimental stage. While the importance of posture on health is coming to be generally recognized, it is not yet known by the Association authorities how far the experiments in habit may lead toward the discovery and correction of criminal and anti-social tendencies in the young children before actual harm results.

Thus the Community Health Association has an organization functioning throughout the city in the interests of public health, and ready at any time to meet an emergency in case of an epidemic. The value of this service was demonstrated in 1918 when the Mayor took over the entire organization to meet the influenza epidemic which entered the country through the city of Boston. With one out of every three persons in the city stricken with the disease, there was neither time nor opportunity to create an organization for this purpose, nor was there the need. Many Boston people will remember that the Association already formed was expanded with every available recruit and was prepared to give its maximum service to the city of Boston at a moment's notice.

The value of the work of the Association in an emergency is a further reason why those in charge of the work are making every effort to prevent a further curtailment of the Association's activities. In spite of every reduction a budget of $290,000 must be met each year, the only source for a large part of which is the generosity and help of the people of Boston.

THE AMERICAN HEART ASSOCIATION

THE American Heart Association was incorporated at Chicago on June 10, 1924.

The object of a national heart association is to interest physicians throughout the country in a study of the causes and prevention of heart disease, the recognition of incipient and other forms and the modern methods of treatment. Realizing that the profession will be greatly aided by the laity, membership is open to all interested persons.

There will be a meeting, probably in June at the time of the American Medical Association convention, when many cardiac problems will be discussed.

The temporary officers elected to serve from June, 1924, until the first Annual Meeting in February, 1925, are:

President, Dr. Lewis A. Conner; Vice-President, Dr. James B. Herrick; Secretary, Dr. Robert H. Halsey; Treasurer, Dr. Paul D. White.

The Board of Directors is as follows:

Dr. Lewis A. Conner, New York; Dr. Haven Emerson, New York; Dr. T. Stuart Hart, New York; Dr. Robert H. Halsey, New York; Dr. James B. Herrick, Chicago; Dr. Henry Jackson, Boston; Dr. C. J. McIntyre, Indianapolis; Dr. Hugh McCullough, St. Louis; Dr. George W. Norris, Philadelphia; Dr. Robert B. Preble,

Chicago; Dr. William H. Robey, Boston; Dr. Joseph Sailer, Philadelphia; Dr. Sidney Strauss, Chicago; Dr. William D. Stroud, Philadelphia; Dr. Paul D. White, Boston.

The following members comprise the Executive Committee:

Dr. T. Stuart Hart, Chairman; Dr. Lewis A. Conner, Dr. Haven Emerson, Dr. Robert H. Halsey, Dr. William H. Robey, Dr. Joseph Sailer, Dr. William D. Stroud.

There are five classes of members as follows:

(a) Donors—who shall give to the Association the sum of $1000, or more each. Donors shall be life members without dues.

(b) Patrons—who shall pay dues to the Association of $100 or more per annum.

(c) Sustaining Members—who shall pay dues to the Association of $10 per annum.

(d) Annual Members—who shall pay dues of $5 per annum.

(e) Associate Members—who shall be members of local heart associations and who shall pay an annual subscription of one dollar.

Donors, Patrons, Sustaining Members, Annual Members and Associate Members shall have equal privileges of membership and each shall be entitled to one vote at all meetings of the Association.

Affiliated Members—Any person not a member of the Association, who shall contribute to it the sum of $2.00 per annum, shall, subject to the approval of the Board of Directors, be known as an Affiliated Member, but shall not be entitled to vote or hold any office.

Membership fees may be sent to the Treasurer of the Association, Dr. Paul D. White, American Heart Association, 370 Seventh Avenue, New York.

CLINICAL MEETING AT BEVERLY HOSPITAL

A DEMONSTRATION clinical meeting was held at the Beverly Hospital, Tuesday, July 15th, at which cases were shown and discussed.

INFANTILE PARALYSIS

REMEMBER that you should suspect infantile paralysis if your child is ailing and any of the following conditions are present.

1. *Cries when held or seems to have tenderness or pain in the neck and back.*
2. *Has a little fever and is drowsy.*
3. *Has fever and is very irritable.*
4. *Has a second attack of light fever coming on in a few days without known cause.*
5. *Shows sudden weakness in one or both legs or in an arm or both, a few days after fever.*
6. *Has been near any person who has infantile paralysis and shortly after gets a light fever.*
7. *Has diarrhea with slight fever.*

If so, call your doctor at once!

Excerpts from the Chicago Department of Health Weekly Bulletin.

CORRESPONDENCE

LONDON LETTER

From Our Special London Correspondent

REPORT OF THE PROCEEDINGS OF THE THIRD ENGLISH-SPEAKING CONFERENCE ON INFANT WELFARE, HELD AT CAXTON HALL, WESTMINSTER, LONDON, ON 1, 2, 3, JULY, 1924

On July 1, 2, 3, the third English-Speaking Conference on Infant Welfare was held at Caxton Hall, Westminster, London, presided over by the Rt. Hon. John Wheatley, M. P., Minister of Health. There were present over 700 delegates representing local authorities, child welfare institutions and governments of thirty different English-speaking countries. The meetings of the various sections were all well attended and the Conference from all aspects was the most successful that has taken place.

At the opening session the chair was taken by Dr. G. F. Still, chairman of the National Association for the Prevention of Infant Mortality and of the National League for Health, Maternity and Child Welfare, and among those who were with him on the platform were: The Rt. Hon. John Wheatley, M. P., Minister of Health; Dr. Janet Campbell, senior medical officer, Ministry of Health; Sir George Buchanan, League of Nations and Ministry of Health; Miss Puxley, Ministry of Health; Dr. Laura Pugh, Ministry of Health, Wales; Lieutenant-Colonel Hodgson, Government of India; Surgeon S. L. Christian, U. S. A. Public Health Service; Dr. G. M. Morris, Government of Australia; Mr. Benjamin Broadbent, National Association for the Prevention of Infant Mortality; Lady Barrett, M.D., Dr. Janet Lane-Claypon, Mr. Werner and Mme. Morier, International Save the Children Fund Union; Miss Ellen Babbitt and Dr. Gesell, American Child Health Association.

The Rt. Hon. John Wheatley, M. P., Minister of Health, gave an inaugural address which put the situation as regards the care of mothers and infants in the clearest manner possible. It is a subject in which he has been always intensely interested and of which no man in Great Britain has had more practical experience. He was one of a large and very poor family himself and was brought up under the most deplorable conditions of poverty. His address was eloquent but was too long to quote at the length it deserves. He pointed out that there is no doubt that much of the mortality that obtained in maternity was of a preventable nature, and it was the duty of a conference concerned with infant welfare to pool its experiences and opinions in a national and international effort to ascertain the means by which this prevention could be secured; because it was necessary to bear in mind that it was not merely the mortality but the amount of suffering and the amount of misery that was at present associated with motherhood.

A point of the first importance which Mr. Wheatley stressed was the necessity for women, and for poor women in particular, during the period of confinement, the most skilled attention available, and he insisted rightly that there would never be a satisfactory state of things until in every part of Great Britain homes had been erected in which it was safe for children to be born. Moreover, he emphasized another condition essential to the welfare of mother and child, that is, the need for skilled attention and care during the ante-confinement period, the confinement period and the post-confinement period. He was of the opinion—and who shall say him nay?—that a skilled midwife should be available to every woman who requires the service of a midwife; that medical advice should be available in an emergency where it is needed, and that it should be the business of the local authorities or voluntary agencies to see that when that advice had

been given there existed the means for making that advice effective. As an effective means to this end he drew attention to the value of maternity beds in lying-in homes and institutions for the needy and necessitous. Such institutions were required for complicated cases and for the unfortunate indigent people who had no facilities at home to enable them to obtain the skilled service which they required during that period. These homes also served another purpose: that of the training of women and the teaching of motherhood. At present such places were few, but he hoped that soon, by the agency of his department, institutions and homes of this kind would be springing up in every part of the country, and in remote rural districts as well as in the crowded cities and towns.

One more point with which Mr. Wheatley dealt in his address—namely, the need for educating the working woman to recognize and appreciate scientific methods of attention and care during the antenatal, natal and post-natal periods. It is one of the duties, and not the least important duty, of welfare workers to familiarize the mothers of a country with welfare work. Mothers of the working class are apt to regard with scorn newfangled notions of rearing children. And this is especially the case in a conservative country as is Great Britain, in fact, as Mr. Wheatley pointed out, where all—even those who, like him, are labelled revolutionaries—cling tenaciously to the conditions and traditions which they have inherited. But these people must be approached and spoken to by welfare workers in a tactful manner. As Mr. Wheatley said, the most damaging thing a welfare worker could do was to go along to these people in a patronizing way and talk down to them. He advised that such workers should try to get on terms, if not of social equality, at least on terms of intellectual or human equality with these people and talk to them in that friendly, comrade-like way which was essential to the winning of their confidence.

There seemed to be a universal agreement among the delegates that there was room for much improvement in the training of midwives. In Great Britain, according to Miss Elsie Hall, a member of the Croydon Guardians, it was the practice of some local authorities to place the inspection of midwives under health visitors, rather than under those who had an intimate knowledge of the practice of midwifery and all that entailed in connection with the Central Midwives' Board's rules. As one who had the great honor of sitting under a good inspector, who understood every detail and had an intimate knowledge of the necessities of confinement, she emphatically maintained that it was of the greatest value to her to have somebody with that real knowledge visiting her, especially if she had a case in which it was necessary to send a medical aid notice under the regulations of the Central Midwives' Board. If there was a qualification for teachers of midwifery there would be a big jump forward in the education of midwives.

Perhaps one of the most instructive papers read at the Conference was that on the training of the health worker, by Dr. Janet E. Lane-Claypon. Dr. Lane-Claypon began by pointing out that the education of the health worker must remain debatable until the work she had to do had been in some degree settled. As for the immediate question of the education of the health worker, it appeared to her impracticable for any woman to undertake adequately, on however small a scale, the various branches of work which fall under the heads of preventive and curative medicine and consequently now come within the general purview of health work. Again, there was the attitude of mind. It had always seemed to Dr. Lane-Claypon that there was a distinction between the mental attitude required for preventive and curative work, just as she believed that there was a distinction between the mental attitude required for clinical and for research work. Moreover, unless there were sufficient workers to carry out all the work required in all the branches, the appeal of the curative work was very liable to press out the preventive work, which at the moment would appear to be less urgent than the curative. Generally, she thought the preventive attitude appeared to be the harder to maintain. More faith was required, and, in some ways, perhaps, more real knowledge. As an illustration, take the case of summer diarrhea of infants. The child was ill, and there was something concrete to be done, under the direction of the doctor. If the child recovered there was a pleasing glow of satisfaction. If the child died, well at least everything possible had been done after it had the attack. But the health worker must learn to visualize, she must see with the eye of faith the potential attacks of diarrhea which might arise from bad sanitary conditions, dirty houses, unsatisfactory habits, improper methods of feeding, and so forth. She could not feel the glow of satisfaction of the curative worker because she could never really know that by remedying such states she prevented illness in any particular child. It was true that if she would now look back, not a few weeks but some years, she could point to the general improvement in the health of the children and of the nation generally, and she could feel that she had had a part in bringing it about. But with that she must be satisfied, and she must work on patiently—often, perhaps, somewhat monotonously—inculcating the importance of hygienic habits without any immediate tangible results.

Dr. Lane-Claypon thought that three divisions of health workers were needed, apart from those required for the more strictly social aspects of relief in its various forms, which in no case should form any part of the duty of the health worker herself. There should be the midwife, who should receive a sound training in the theory and practice of midwifery and in the hygiene of early infancy. The period at which "early infancy" might be regarded as terminating is a matter for discussion, but personally Dr. Lane-Claypon would not be averse from placing it at about two to three months. At the end of early infancy the health worker should take over the work, and she should be responsible, under due supervision, for the child until it left school, if possible. Curative work should be undertaken by the nursing service, although agreement was necessary as to the boundary of the two aspects, especially in the school service. The workers in each of the three services should have a reasonable knowledge of the work of the other services, but need not be able to undertake work in these branches.

If the health worker was to appreciate the effects of defective public or personal hygiene she must have some experience of sickness, and for this she required some hospital training. She must also have an elementary acquaintance with midwifery. But she could not spare time for, and did not require the full training of a hospital nurse, as given in this country, nor that of a midwife. It would be difficult to arrange for a really adequate training in the subjects required in less than three and one-half to four years, and of this period not more than one and one-half to two years could be spared for the nursing and midwifery aspects. Admittedly, there were practical difficulties, many of which would vanish if the health worker were regarded as belonging to a profession, allied with, but separate from, either of the above. The health worker needed training in sanitation in its widest sense, in the normal working of the body at different ages of life, in the elements of social economics, and in local government and civic work. She should be a spe-

cialized worker, with a special training. She would neither be able nor be entitled to practise as a fully trained sick nurse or as a midwife. This implied that there would be a profession of "health worker," which would require due recognition with adequate salaries and prospects of advancement just as there were in any other definite profession. In this age of advance and specialization it was no longer possible for the average person to combine the duties or the training required of a health worker with those of any other profession.

In this paper, Dr. Lane-Claypon appears to have put in a nutshell the situation as regards the training of the health worker in Great Britain. Probably most of her remarks apply with equal force to the situation in the United States. The health worker, to do her work effectively, must not only be intelligent and tactful but must be skillful, that is, well trained. Also she must specialize, to a great extent, in the particular branch of the work she takes up, while at the same time she is conversant, or, at least, has slightly more than a bowing acquaintance, with the other branches. There is little room anywhere now for the amateur, however enthusiastic and hard-working, and especially in matters relating to health.

In the discussion that followed the reading of the paper by Dr. Lane-Claypon, Dr. Stella Churchill, assistant medical officer of health, St. Pancras, said that she had worked in London boroughs with every type of health visitor and had found that personality was a fundamental characteristic which insured success. However, she was convinced that if they wanted to get really reliable information as to the facts of occurrences both inside homes and centers they must have a trained worker and essentially a midwife.

The general opinion of those who took part in the discussion was that health visitors should be trained more thoroughly than was at present the case.

The second session of the Conference was taken up with a consideration of the problem of the illegitimate child and its mother. The opening address was given by Mr. Neville Chamberlain, P. C., M. P., late Minister of Health, who pointed out that the salient fact in this problem to his mind was this: that statistics showed that the mortality among illegitimate children was more than twice as great as among legitimate children. It meant also that in addition to the actual deaths a very much larger proportion of the illegitimate children grew up impaired in health and in the possibilities of their becoming efficient citizens than was the case among those born in wedlock. Therefore, looking at the subject from the point of view of the welfare of the child, it showed how necessary it was that special attention should be given to removing from these children the causes which had brought so great a difference between their conditions and the conditions of the legitimate children. Mr. Chamberlain then dealt with the Legitimacy Bill which passed in the House of Commons last session and which would, if it were carried into law, enable children to be legitimatized if their parents subsequently married.

The first paper on the subject was given by Dr. Letitia Fairfield, who reviewed legislation concerning the illegitimate child in the civilized countries of the world. She pointed out that in the United States there was found every possible variation of legislation, although the general tendency was the same as was found in England and Wales, which had found expression in the bill recently before the House of Commons, and that was the recognition of the relation between the mother and the illegitimate child in such a manner as to approximate its status to that of the lawful parent and child. The principle that the mother and child were to be related practically as though legitimate is expressly laid down in the codes of at least two of the States, and North Dakota came very close to Norway in 1917 by declaring that every child was the legitimate child of its natural parents—a vague term which might open up interesting legal speculations as to its implications and possible meanings.

Miss J. E. Higson, warden of the Josephine Balter Memorial Home, Liverpool, read a paper on residential accommodation for the unmarried mother and her illegitimate child and described the different types of homes in this country.

The thorny question of the unmarried mother and her illegitimate child was discussed by delegates from various parts of the world.

Surgeon S. L. Christian, U. S. A. Public Health Service, and the representative of the Government of the United States, presided over the Third Session and was accorded a hearty welcome. The subject debated was the oversea settlement of children. Several able papers were read and the discussion thereon was lengthy. Child adoption was next dealt with, and papers were given on the matter from the medical and legal standpoints. Among the papers read was one by Dr. Henry Dwight Chapin of New York, president of the Children's Welfare Federation of New York. He drew attention to the fact that at the present day nearly all nations of the world had laws concerning adoption and that England was one of the few civilized countries that had no adoption laws and never had any. He thought it was especially strange that since the war, with all the orphans and war babies needing homes, this great legal defect had not been corrected by act of Parliament. Dr. Chapin said that the question of heredity was a bugbear to many thinking of adoption. He believed that numerous conditions usually attributed to heredity were really due to environment in the early months and years. Adopted children, as a rule, turned out as well as natural children in good families. Some years ago the Children's Aid Society of New York published statistics showing that among a large number of children placed out by them less than one per cent. could be listed as failures. It was thus wise and safe to encourage the adoption of abandoned children who were normal and healthy. He concluded by expressing the opinion that until other countries were willing to give a fairer deal to the illegitimate child and better aid to the unmarried mother, adoption of the child into good families was the best solution of the problem in the great majority of cases.

Dr. Arnold Gesell, American Child Health Association, opened the discussion, described child adoption in America, and said it was surrounded with more than ordinary legal safeguards, the law summing up the situation as follows: "The child shall be as though born in wedlock." He pointed out that the best legal administration with regard to child adoption was that represented in the laws and regulations of the State of Minnesota. Experience had shown that a very important feature of child adoption was the safeguarding of the final decision by careful medical examination, and it was stated that as a minimum standard there should be one full probationary year before adoption became final. The most favorable time for adoption, all things considered, was the period of infancy.

Miss Ruth Berolzheimer felt that they in England would make fewer mistakes than America had in regard to the problem of child adoption, which was indissolubly linked with the problem of dealing with the illegitimate child. Probably in England there would be one law, and there would be an attempt to keep the mother and child together; and lastly, they would probably go more slowly than had been the case in America. As it was, they had no record as to what happened to the woman who kept her baby. The probability was that she left it with some institution. Then they had not been careful

in their health examination throughout the United States. In conclusion she asked those in Great Britain to help the United States with respect to what actually happened to the young woman who kept her baby. In Britain there must be innumerable records. Could the United States be given some facts to base further development?

Lady Nott-Bower, a member of the Richmond Guardians, hoped that they would not mind her saying a few words against a campaign in favor of adoption. It seemed to her that advocating adoption was rather like the Infant Welfare Association setting out to advocate the feeding of babies with a feeding bottle. It meant giving up nature's method. It was not a natural method even in the best of circumstances. Of course, the real strength of the plea put forward was for the unmarried mother and her child, and they had been asked to say what was the alternative in that connection. One alternative was the hostel for the mother and child, from which the mother could go out to work and return to her child. Such hostels were proving successful. The ideal they wanted before them was the encouragement of the mother to do her duty as a mother. They should try, whenever possible, to keep the mother and child together. As for the stigma of illegitimacy, it was said that if the child was adopted it would not suffer in that respect. Was that child, then, to live always under the shadow of a lie? Was it to believe it had been born in wedlock? Sooner or later it was bound to find out the circumstances.

The discussion on the subject was lengthy and somewhat confusing, as was certain to be the case on so difficult a question as child adoption as a means of solving to some extent the problem of how best to care for the unmarried mother and her child.

Dr. I. W. Sinclair of Melbourne proposed a vote of thanks to the chairman, and coupled with it thanks to all the American representatives who had helped in the discussion.

The Fourth Session was organized by the National Society of Day Nurses, the subjects for debate being "The Preventive Side of Day Nursing" and "The Psychological Benefit to Children of Being at a Day Nursery."

Sir Bruce Bruce-Porter, M.D., London, said that the preventive side of day nursery work had two aspects: 1, in relation to the direct influence on the health of the particular children who are in the day nursery; and 2, in the education of the mothers, not only of these children but of other parents in the neighbourhood who must notice the difference between well-cared for children and those who are neglected. Modern so-called civilization had produced a state of affairs in which the population lived mostly in crowded cities and towns, and at the same time compelled many mothers to go out into the labor market to earn the wherewithal to keep their homes together. Under these conditions it was of untold value to the community that the mother should have a well-equipped place of safety in which to leave the child instead of handing it over to the care of some well-meaning but ignorant neighbour during her absence. The advantages to the child of the day nursery were manifold. The child during the critical years was under skilled observation, and defects and diseases could be recognized in the early and curable stages. The child was examined every day during its toilet, and such things as irregular rate of growth, rickets, etc., were noted. Rashes would be noted at once and it could be decided whether they were due to infectious diseases or were early manifestations of hereditary diseases such as syphilis. That contagious disease gonorrhea, the greatest cause of blindness in children, might be recognized. Next, the diet of the child could be attended to thoroughly.

Referring to the careless way in which the mother of the working class is wont frequently to feed her child, Sir Bruce-Porter retells the following incident: A visitor, inquiring why a mother was feeding her six-months-old infant on corned beef, was startled by the reply: "Well, you see, he don't seem to care for pork." In the day nurseries the child was sure of food suitable to its age and rich in vitamins, and such digestive troubles as were due to errors of diet were sure to be noticed and corrected. In fact, as Sir Bruce-Porter pointed out, the child is reared in day nurseries in the most scientific and natural manner possible and all defects are remedied as thoroughly as may be. The advantages to the mother and the community at large were: 1. The freedom from anxiety as to the safety of the child while the mother was away at work had great economic value, for her work would be better. 2. The mother would learn how a child ought to be cared for by the hints given her when she took her child to and from the nursery, and if a time arrived when she could remain at home with her children she would be better qualified to care for them.

Dr. Crichton Miller in a very able paper dealt with the psychological benefit to the child of the day nursery.

The Fifth Session, under the chairmanship of Dr. E. W. Morris, the representative of Australia, was concerned with the subject of "The Available Measures for Securing Healthy Pregnancy and Safe Delivery." Lady Barrett, C.B.E., M.D., M.S., read a paper on the above subject. She said, in part, that theoretically she supposed all had come to accept the necessity for caring for the mother during pregnancy if child-bearing was to be made safe. In urban districts this was provided for by maternity clinics and home visiting. In rural districts organization of this work was not yet complete, but clearly home visiting must play a more important part than in towns, since ante-natal clinics were not made easily accessible. But though the necessity for this skilled observation of the pregnant woman was not now seriously contested, in practical working it was still very deficient. Much of the routine work must inevitably be done by midwives, but the ante-natal work of the midwife would need to be linked in ever closer coöperation with medical men and women if it was to be efficient and not to offer a false security. For the midwife's work to be efficient, the limits of it must be very carefully defined, so that there was no doubt in her mind as to where the doctor came in. It was no slight to the midwife to suggest coöperation with the doctor; each had his or her special training for special work; the important point for the patient was to recognize where the one ended and the other began. Lady Barrett described the particular spheres of doctor and midwife. She placed great emphasis on the provision of maternity beds for pregnancy and for delivery, with ambulance service attached both for town and country, declaring that it was an absolutely essential part of preventive measures. She also pointed out that better practical training of doctors and midwives and facilities for obtaining skilled assistance quickly were needs which called for attention.

Lady Barrett also called attention to the fact that it was not only the poor who required maternity beds. It was just as important in many cases that such beds should be provided under hospital conditions at a sliding scale of fees for women whose homes were inadequate or unsuitable, and some provision of specialist's skill when required ought to be available for women who were above the hospital class, yet too poor to pay full specialist's fees.

Carolyn Conant Van Blarcom gave a long and able paper on "The Provision of Adequate Maternity Care in the United States." In the discussion that followed representatives of many and diverse nationalities took part, and the opinion was freely voiced

that upon the adequate and proper treatment and care of the mother before and during pregnancy the solving of the problem of child welfare largely hinged.

The Sixth Session, organized by the National Baby Week Council, was presided over by Viscountess Rhondda, vice-chairman of the Council. The subject for debate was "The Scientific Principles of the Most Effective Methods of Propaganda on Maternity and Child Welfare." Miss Ellen Babbitt, American Child Association, told how these things were done in America and laid stress on the value of what are known as "movie pictures" as a means of propaganda.

Among the many papers of intense interest read was one on "Maternity and Child Welfare Work in Uganda and Its Relation to the Birth-Rate and Death-Rate," by Dr. Albert Cook, C.M.G., O.B.E., M.D. It was shown in this paper that for the seven years 1914-20, inclusive, the deaths and stillbirths in the Kingdom of Buganda were registered as 100,146, the births being 67,999 for the same period—a dead loss to the community of 32,147 lives. In Bunyore there was a loss of 14,878, in Ankole of 2,453, in Toro of 185. In Busoga alone was there an increase, and that of only 7,525. In these five most important and progressive nations or tribes of the Uganda Protectorate, in these seven years, there was a net loss of more than 42,138 lives. The main cause of this abnormal mortality in a naturally prolific race was the prevalence of venereal disease. To combat this really appalling state of affairs maternity homes have been provided by the Christian missions, both Protestant and Catholic, aided by the government, and native midwives have been trained and are being trained. It is the convinced opinion of Dr. Cook that, given adequate support, in ten years' time these trained native midwives would change a diminishing population to an increasing one. In fact, already the treatment of the infected population has met with striking success. Last year's vital statistics gave ground for thinking that the worst is past.

NEWS ITEMS

RESIGNATION

Mr. Henry Copley Greene has resigned from the position of Executive Secretary of the Department of Health Service, Boston Metropolitan Chapter, Red Cross. Mr. Greene has been active in various health organizations and has achieved an enviable reputation as an executive. During the war he was Red Cross worker and helped in the evacuation of Noyen.

He was given the Croix de Guerre in recognition of his work with the wounded of the First and Second Divisions in French hospitals. He had charge of the Red Cross relief in the department of the Aisne.

CHANGES IN THE HARVARD MEDICAL SCHOOL

Dr. Wade Wright has resigned and will take up work with the Metropolitan Life Insurance Co. in New York.

Dr. Derric C. Parmenter will fill the position made vacant by the resignation of Dr. Wright.

Other appointments are as follows:

Dr. Carl Rupp Doering, Instructor in Vital Statistics, and Dr. Edward Godfrey Huber, Assistant in Vital Statistics.

Dr. Charles Alexander Mackay, Instructor in Ventillation and Illumination.

Dr. Adrien Bourcart, Assistant in Communicable Diseases.

A CLINIC FOR VENEREAL AND SKIN DISEASES

A Clinic has been started at the Cambridge City Hospital for the treatment of venereal and skin diseases, of which Dr. Walter T. Garfield is in charge.

THE PEDIATRIC SERVICE AT THE MASSACHUSETTS GENERAL HOSPITAL

The changes in the appointments on the Pediatric Service at the Massachusetts General Hospital are as follows:

Dr. James Herbert Young, Visiting Physician.

Dr. Joseph Garland, Visiting Physician.

Dr. E. C. Romberg, Visiting Physician to Out-Patients.

OFFICERS OF THE MASSACHUSETTS STATE NURSES' ASSOCIATION

The annual election occurred in June and the following officers were elected:

Carrie M. Hall, R. N., President, Peter Bent Brigham Hospital, Boston, Massachusetts.

Bertha W. Allen, R. N., First Vice-President, Newton Hospital, Newton Lower Falls, Massachusetts.

Melissa J. Cook, R. N., Second Vice-President, Melrose Hospital, Melrose, Massachusetts.

Emma M. Nichols, R. N., Treasurer, 36 Maxfield Street, West Roxbury, Massachusetts.

Jessie E. Catton, R. N., Corresponding Secretary, New England Hospital for Women and Children, Dimock Street, Boston 19, Massachusetts.

Mary Alice McMahon, R. N., Recording Secretary, Boston State Hospital, Boston 24, Massachusetts.

REMOVALS

Dr. Willard P. Stapleton has moved from Gardner to Newark, N. J., 220 Van Buren St.

Dr. Louis Siegel (incorrectly spelled Siegal) has moved his office from Highland St. to 68 Shirley Ave., Revere.

Dr. Frank H. Carlisle has a temporary address at 541 Main St., South Weymouth.

Dr. Frank E. Lewis of Nantucket has changed his office from Chestnut St. to 30 Center St.

Dr. Frederick H. Baker of Worcester has moved his office to 3 Irving St. His residence is at 29 Whitman Rd.

Dr. George E. MacArthur of Ipswich has moved his office from 21 to 64 North Main St.

Dr. William A. MacIntyre of Manchester has moved his office from 49 to 32 School St.

Dr. Nelson G. Trueman of Salem has moved his office from his residence, 41 Dearborn St., to 377 Essex St.

Dr. Josephine D. Kable has moved from Worcester (Worcester) to Marlborough (Middlesex South) where she has an office at 41 Mechanic St.

Dr. Jesse H. Averill of Campello has moved from Main St. to 26 Cushing Ave.

Dr. Belle J. Allen has moved from Leadenhall St., London, Eng., to 35 Highway New Park, London N. 5., Eng.

Dr. Roy C. Jackson has moved from Norwich, Conn., to the State Hospital at Wernersville, Pennsylvania.

Dr. David Zachs has moved from Middleton (Essex South) to the North Reading State Sanatorium (Middlesex East).

Dr. William H. Litchfield of Marblehead has moved from Front St. to 43 Gregory St.

Dr. Leon A. Alley has moved from Rutland (Worcester) to Lakeville, Middleborough (Bristol North) where he is superintendent of the State Sanatorium.

Dr. Frederick C. Cobb is now at Riverview, Gloucester, Mass., having returned from Bermuda.

Dr. Ester M. E. Sundelof, now Mrs. E. G. Ericson, has moved from Roxbury (Norfolk) to 125 East 127th St., New York City.

Dr. Frederick M. Briggs now has his office at 486 Commonwealth Ave., Boston.

Dr. F. Gorham Brigham has moved his office from 35 Bay State Rd. to 472 Commonwealth Ave., Boston.

Dr. Arthur F. Petersen has changed his office from 23 to 861 Main St., Brockton.

Dr. W. Russell Smith has moved his office from Ashland St. to 40 Summer St., Taunton.

Dr. Daniel F. Murphy has moved from Rantoul St. to 336 Cabot St., Beverly.

Dr. Samuel A. Merlin has a residence in Allston (Middlesex South) and an office at 444 Warren St., Roxbury (Norfolk).

Dr. Joseph B. Sayles' office is now in the Crocker Building, Taunton.

Dr. Lewis L. Bryant has moved from Harvard St. to 4 St. Paul St., Cambridge.

Dr. H. H. Hartung now has an office at 362 Commonwealth Avenue.

Dr. L. H. Hobgood has moved his office from 8th St. to 101 School St., New Bedford.

Dr. Frank M. Howes has moved from North Orchard St. to 135 Cottage St., New Bedford.

Dr. John N. Risley's office is now at 4 Eighth St., New Bedford.

Dr. Elmer E. Robbins, Jr., has moved from Pleasant St. to 101 School St., New Bedford.

Dr. Bernard Appel now has an office at 491 Commonwealth Ave., Boston.

Dr. Clara M. Greenough is now at Skidmore College, Saratoga Springs, N. Y.

Dr. John H. Gordon has moved from Detroit to Birmingham, Mich., where his address is 1st Nat'l Bank Bldg.

Dr. Mortimer H. Paine has removed from Maynard (Middlesex South) to Ipswich (Essex South), where his address is 49 Central St.

Dr. Sumner Coolidge's address is now Lakeville, Mass.

Dr. Samuel A. Clement has moved from 1675 to 1654 Massachusetts Ave., Cambridge.

Dr. Delbert L. Jackson has changed his office from 520 to 472 Commonwealth Ave.

Dr. Lillian R. Smith has moved from Lawrence to Lansing, Michigan, where she is Prenatalist in the Bureau of Child Hygiene of the State Department of Health.

RECENT DEATHS

Dr. James Francis Sullivan died at his home in Lowell, August 6, 1924, at the age of 66. He had practised in Lowell for 40 years, settling there soon after graduating from Harvard Medical School in 1882. He was a member of the Massachusetts Medical Society from 1883 to 1917, giving up membership after his health failed.

Dr. Jacob Gyore Green, a graduate of the University of Budapest, Hungary, in 1884, died at his home in Malden, August 7, 1924, aged 65, as a result of apoplexy. He was a member of the Malden Medical Society and vice-president of the Malden Anti-Tuberculosis Society. A widow, two sons and a sister survive him.

The body of DR. ROBERT GRIER LE CONTE was found in his office in Philadelphia, August 6, 1924, with a bullet wound in the temple, apparently self-inflicted.

Dr. Le Conte came of noted ancestry, his father being John Laurance Le Conte, the entomologist and geologist, and his grandfather John Eatton Le Conte, the naturalist, who died in 1860. Robert was born in Long Branch, N. J., July 17, 1865, graduated A.B. at the University of Pennsylvania in 1885 and M.D. in 1888. After serving as resident physician in the Pennsylvania Hospital he studied abroad, settled in Philadelphia as a surgeon, became assistant surgeon to the Pennsylvania National Guard, then, in the Spanish War, assistant surgeon and ensign in the Navy, and, in 1903-4, surgeon-general of Pennsylvania. During the World War he was commander in the United States Navy Reserve Corps in France.

Dr. Le Conte was surgeon to the Pennsylvania Hospital, a trustee of the University of Pennsylvania, of the Wistar Institute of Anatomy, of the Drexel Institute and of the Philadelphia Children's Hospital, besides being a member of the College of Physicians and the Academy of Surgery.

He was married.

OBITUARY

PHILIP CHALLIS BARTLETT, M. D.

DR. PHILIP CHALLIS BARTLETT died suddenly at his home in Newton Highlands, July 25, 1924. He was a native of Newburyport and was educated in the public schools of that city. He graduated from the Tufts College Medical School in the class of 1900 after which he served as house officer at the Boston City Hospital.

On leaving the hospital he at once entered institutional work at the Worcester Hospital for the Insane, acting as both Assistant Physician and Pathologist. Later he held similar positions at the Danvers State Hospital.

In 1905 he married Miss Mary Fowler of Worcester. After leaving Danvers he was Assistant Physician at the Rutland State Sanatorium, leaving there in 1909 to superintend the construction of the New Hampshire State Sanatorium at Glencliff. The following year, 1910, he returned to Rutland as Superintendent, continuing there for three years. At the end of this time, owing to ill health, he was obliged to give up active work. Gradually he took up private practice with an office in Boston. During his convalescence he worked in the medical out-patient department of the Massachusetts General Hospital. In 1916 he was given an appointment on the Out-Patient Staff. Here, associated with Dr. Hawes and later with Dr. Miller, a large non-pulmonary tuberculosis clinic was developed. This group of hitherto little studied cases was carefully followed over a period of years.

In the spring of 1917 he became associated with the Framingham Health Demonstration, remaining with the Demonstration till his death.

During the World War Dr. Bartlett gave freely of his time to examine for the Selective Service Board of the Framingham District. In the field of industrial medicine, Dr. Bartlett became a recognized authority, getting special experience in the organization of the medical clinic of the Dennison Manufacturing Co. Later he became physician to the Roxbury Carpet Co.

He was a Fellow of the Massachusetts Medical Society and a member of the National Tuberculosis Association and of the Newton Medical Club.

Though not an athlete himself, Dr. Bartlett had keen interest in real amateur sport and, while in Framingham, for several seasons assisted the coaches of the High School football team.

Dr. Armstrong, the Executive Officer of the Framingham Health Demonstration, writes of Dr. Bartlett: "Probably few outside of the National Committee of the National Tuberculosis Association and the members of the Staff of the Framingham Health Demonstration are in a position to appreciate the tremendous contribution which Dr. Bartlett's work made, not only to the Demonstration, but to the very fundamental medical aspects of tuberculosis programs everywhere."

Soon after the Framingham Health Demonstration had started and a preliminary examination of 2500 people had been made it was found necessary to have someone to follow the cases found to have vague broncho-pulmonary signs in order to make sure whether or not they were tuberculous. A large number of such patients were referred to their own physicians for careful observation. These physicians in turn requested expert advice on a number of these cases. Dr. Bartlett chanced to be available for this work and soon made himself practically indispensable to the Demonstration. Indeed, as Dr. Armstrong has said above, one of the chief contributions of the Framingham Health Demonstration has been to establish the value of a broadly trained consultant in connection with any well organized movement to diminish tuberculosis in any community. Further, that a specialist in tuberculosis alone is not enough but the consultant must be a man of extensive knowledge in internal medicine. As the Framingham Health Demonstration has furnished a model program for the world to follow in any attempt to blot out the ravages of tuberculosis, so Dr. Bartlett's special contribution to this program will remain of permanent value.

Dr. Bartlett's tact and modesty, together with his large and varied clinical experience, made him respected and beloved by those with whom he had professional dealings, whether physicians or patients.

Dr. Bartlett was handicapped in the struggle of life by a poor physique but he was always brave and plucky and in whatever position in which he was placed he always uncomplainingly gave of his best.

Dr. Bartlett is survived by his wife and one son, Challis, and also by his mother.